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Index to Volume LXVI

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VIRGINIA MEDICAL MONTHLY

INDEX TO VOLUME LXVI

JANUARY, 1939—DECEMBER, 1939, INCLUSIVE

INDEX OF CONTRIBUTORS

DR. WALTER P. ADAMS, Norfolk 129
DR. E. L. ALEXANDER, Newport News 209
DR. FRANK L. APPERLY, Richmond 215, 447
DR. G. B. ARNOLD, Colony 522
DR. GARNET W. AULT, Washington, D. C. 86
DR. E. E. BARKSDALE, Danville 660
DR. WEBSTER P. BARNES, Richmond 94, 395
DR. JULIAN R. BECKWITH, University 226
DR. JOSEPH F. BELAIR, Washington, D. C. 449
DR. R. A. BERGER, Richmond 263
DR. J. L. BERKLEY, Charleston, W. Va. 282
DR. KARL S. BLACKWELL, Richmond 468
DR. JOSEPH R. BLALOCK, Marion 92
DR. NATHAN BLOOM, Richmond 79, 478, 740
DR. W. M. BOWMAN, Petersburg 723
DR. HARVEY C. BROWNLEY, Lynchburg 479
DR. W. F. BRYCE, Richmond 47
DR. WM. F. BURDICK, Washington, D.C. 729
DR. M. O. BURKE, Richmond 68
DR. W. W. S. BUTLER, Roanoke 12
MR. W. R. BYRUM, Richmond 489
DR. DOUGLAS G. CHAPMAN, Richmond 132
DR. LOUIS H. CLERF, Philadelphia, Pa. 332
MR. J. ALEX. COCKE, University 213
DR. ROGER S. COHEN, Washington, D. C. 719
DR. DEAN B. COLE, Richmond 387
DR. C. B. COURTNEY, Newport News 390
DR. W. G. CROCKETT, Richmond 191
MR. LOUIS A. DAOUST, Abingdon 473
DR. O. B. DARDEN, Richmond 666
DR. T. DEWEY DAVIS, Richmond 317
DR. CHALLIS H. DAWSON, Suffolk 596
DR. R. M. DEHART, Christiansburg 218
DR. A. I. DODSON, Richmond 255
DR. CHARLES W. DORSEY, Roanoke 607
DR. WILSON E. DRIVER, Norfolk 151
DR. JOSEPH F. ELWARD, Washington, D. C. 449
DR. J. M. EMMETT, Clifton Forge 105
DR. WM. H. FELDMAN, Rochester, Minn. 36
DR. M. FLIESS, Clifton Forge 105
DR. WESLEY FRY, Washington, D. C. 173
DR. JAMES A. GANNON, Washington, D. C. 235
DR. E. TRIBLE GATEWOOD, Richmond 465
DR. R. FINLEY GAYLE, JR., Richmond 6, 707
DR. ELBYRNE G. GILL, Roanoke 275
DR. WILLIAM P. GILMER, Clifton Forge 143
DR. EDWARD S. GODFREY, JR., Albany, N. Y. 534
DR. K. D. GRAVES, Roanoke 162, 678
DR. HENRY G. HADLEY, Washington, D. C. 530
DR. LEO I. HALLAY, McClure 404
DR. JOHN R. HAMILTON, Nassawadox 139
DR. P. G. HAMLIN, Cambridge, Md. 257
DR. EDGAR C. HARPER, Richmond 112
DR. EDWIN A. HARPER, Lynchburg 408
DR. C. LYDON HARRELL, Norfolk 381, 650
DR. D. L. HARRELL, JR., Colony 522
DR. ALLEN T. HAWTHORNE, Winchester 267
DR. W. CAREY HENDERSON, Nassawadox 752
DR. H. C. HENRY, Richmond 731
DR. WM. H. HIGGINS, Richmond 269
DR. OSCAR L. HITE, Richmond 335
DR. FRED M. HODGES, Richmond 263
DR. PAUL HOGG, Newport News 108, 737
DR. H. G. HUDNALL, Covington 302
DR. JOHN HUNDLEY, JR., Lynchburg 516
DR. ABRAHAM M. JACOBSON, Roanoke 487
DR. PHILIP JACOBSON, Petersburg 42
DR. WM. A. JOHNS, Richmond 620
DR. BASIL B. JONES, Richmond 401
DR. THOMAS D. JONES, Richmond 518
DR. WM. R. JORDAN, Richmond 291
DR. MORTON S. KAUFMAN, Washington, D. C. 355
DR. J. PAUL KENT, Altavista 136
DR. PAUL KIMMELSTIEL, Richmond 740
DR. M. K. KING, Norfolk 656
DR. DANIEL B. KIRBY, New York, N.Y. 711
DR. E. W. KIRBY, Charlottesville 73
DR. WM. KLEIN, New York, N. Y. 361
DR. J. KOTZ, Washington, D. C. 355
DR. J. L. LANE, Rocky Mount, N. C. 528
DR. VINCENT EDWARD LASCARA, Norfolk 623
DR. BYRD S. LEAVELL, University 226
DR. EDWIN P. LEHMAN, University 213, 425
DR. GERSHON J. LEVIN, Norfolk 530
DR. BERNARD LIDMAN, Norfolk 417
DR. EUGENE L. LOWENBERG, Norfolk 345
DR. CHARLES H. LUPTON, Norfolk 610
DR. JOHN P. LYNCH, Richmond 409
DR. CHARLES P. MANGUM, Richmond 605
DR. R. CAMPBELL MANSON, Richmond 406
DR. WALTER B. MARTIN, Norfolk 513
DR. JOSEPH T. McCASTOR, New York, N. Y. 484, 735
DR. MARY COUSINS McCASTOR, New York, N. Y. 484, 735
DR. FRANCIS HENRY McGOVERN, Danville 146, 529
DR. WM. B. McILWAINE, Petersburg 96
DR. WALTER McMANN, Danville 412
DR. THEODORE C. MERRILL, Paris, France 674
DR. E. B. MEWBORNE, Newport News 209
DR. T. GRIER MILLER, Philadelphia, Pa. 204
DR. P. ST. L. MONCURE, Norfolk 593
DR. W. A. MOOMAW, Richmond 489
DR. WALTER L. NALLS, Richmond 387
DR. JOHN H. NEFF, Charlottesville 73
DR. SAMUEL NEWMAN, Danville 529
DR. RICHARD B. NICHOLLS, Norfolk 288
DR. JOHN BENJAMIN NICHOLS, Washington, D. C. 339
DR. P. W. ODEN, Richmond 255
DR. MARSHALL J. PAYNE, Staunton 304
DR. W. LOWNDES PEPLE, Richmond 716
DR. JOHN P. PETERS, New Haven, Conn. 751
DR. JOSEPH T. PHILLIPS, JR., Newport News 737
DR. EDWARD PODOLSKY, New York, N. Y. 625
DR. W. A. PORTER, Hillsville 148
MR. WILEY A. PRESTON, Richmond 628
DR. LAWRENCE T. PRICE, Richmond 294
DR. CHARLES W. PUTNEY, Staunton 44
DR. BENJAMIN W. RAWLES, JR., Richmond 416
DR. WELLFORD C. REED, Richmond 171
DR. GEORGE H. REESE, Petersburg 420
DR. IRL C. RIGGIN, Richmond 213
DR. ALEXANDER F. ROBERTSON, JR., Staunton 24, 641
DR. JAMES T. ROUNTREE, Woodstock 103, 575
MR. R. G. ROZIER, Richmond 489
DR. M. PIERCE RUCKER, Richmond 653
DR. ALBERT J. RUSSO, Baltimore, Md. 109
DR. J. H. SCHERER, Richmond 99
DR. WILLIAM L. SIBLEY, Roanoke 663
DR. REUBEN F. SIMMS, Richmond 164
DR. A. M. SHOWALTER, Christiansburg 460
DR. HOMER L. SKINNER, Baltimore, Md. 575
DR. H. W. SMELTZER, Abingdon 169
DR. F. H. SMITH, Abingdon 473
DR. PHILIP S. SMITH, Abingdon 49
DR. L. O. SNEAD, Richmond 263
DR. C. R. SPEALMAN, Richmond 591
DR. J. STUART STALEY, Marion 25
DR. JAMES B. STONE, Richmond 158
DR. SIDNEY J. TABOR, Portsmouth 236
DR. H. MARSHALL TAYLOR, Jacksonville, Fla. 32
DR. F. N. THOMPSON, Newport News 390
DR. M. H. TODD, Norfolk 357
DR. E. P. TOMPKINS, Lexington 533
DR. ELAM C. TOONE, JR., Richmond 282
DR. C. W. TREXLER, Honolulu, Hawaii 293
DR. G. B. TRIBLE, Washington, D. C. 742
DR. BEVERLEY R. TUCKER, Richmond 329
DR. W. K. VANCE, JR., Bristol, Tenn. 453
DR. PORTER P. VINSON, Richmond, 221, 423, 528
DR. J. FRANKLIN WADDILL, Norfolk 322
DR. ALBERT T. WALKER, Portsmouth 300, 398
DR. H. HUDNALL WARE, JR., Richmond 456
DR. FREDERICK C. WARNSHUIS, Boston, Mass. 238
DR. HARRY J. WARTHEN, Richmond 20
DR. O. M. WEAVER, Colony 522
DR. WALTER A. WELLS, Washington, D. C. 65
DR. THOMAS WHEELDON, Richmond, 223, 670
DR. JAMES N. WILLIAMS, Richmond 747
DR. FREDRICK A. WILLIUS, Rochester, Minn. 1
DR. DAVID C. WILSON, University 197
DR. I. D. WILSON, Blacksburg 142
DR. J. EDWIN WOOD, JR., University 226
DR. LAWRENCE F. WOOLLEY, Towson, Md. 644
DR. F. H. YORKOFF, Clifton Forge 105

INDEX TO SUBJECTS

(Italics Indicate Subjects of Original Communications)

A. A. P., The 54th meeting of the 367
Abdominal pain in children, The significance of, 518; — — *complicating pregnancy,* 530; *The responsibility of the general practitioner in the prevention of mortality in acute — conditions,* 169; The advantages of the — approach to hernia, 395; Intra — hernia 620
Abortion, Infectious, in animals 142
Addison's disease with failure of cortical extract therapy, Case of: case report 530
Adenitis, Review of literature on mesenteric 105, 361
Affective disorders, The use of shock therapy in the treatment of the 197
Alcohol or candy 329
Alcoholism, Candy in treatment of 329
Aliens, Trachoma and the medical inspection of 674
Allergy, The leukopenic index in pediatric 108
American Medical Association, Report on meeting of 423
Amnesia, analgesia and anesthesia, Obstetrical: with special attention to their efficiency and safety to mother and child 607
Analgesia, amnesia, and anesthesia: with special attention to their efficiency and safety to mother and child 607
Anemia, The compensatory mechanisms in 215
Anesthesia, Obstetrical amnesia, analgesia, and: with special attention to their efficiency and safety to mother and child 607
Anilin dye dermato-conjunctivitis: report of a case 47
Ankle edema, The significance and management of 171
Anorectum in general practice, Treatment of painful lesions of the 86
Anus: Treatment of painful lesions of the anorectum in general practice 86
Anxiety neuroses 719
Aphasia and psychosis, So-called spontaneous subarachnoid hemorrhage with transient hemiparesis: report of a case 257
Aphthous stomatitis treated with sulfanilamide: report of two cases 528
Appendicitis: its diagnosis and treatment, 420; Fish-bone perforating the caecum simulating acute — 173
Appendix, Ruptured 169
Arsenic poisoning, Acute 148
Arsenical exfoliative dermatitis with tobacco being the probable source of the etiological agent: preliminary report 660
Artery, Partial occlusion of superior mesenteric 235
Arthritis, Current trends in the treatment of chronic, 269; *Otogenic acute suppurative —,* 146; *What message should the specialist carry to the family physician in regard to the treatment of —* 670
Augusta County Medical Association relative to the care of the medical needy, Resolutions of 425
Back pain caused by rupture of the intervertebral discs, Sciatic neuritis and low 656
Bang's disease 142
Beaumont's connection with Virginia, William 435
Behavior problems in children 747
Belladonna root, The treatment of Parkinsonism with a preparation of 707
Blood smear in differential diagnosis, The, 99; —: the erythrocyte sedimentation phenomenon 409
Boards (see *Societies*).
Boerhaave 181
Book and a moral, A good 367

Book Announcements
Aaron—Our Common Ailment, Constipation: Its Cause and Cure 115
American Medical Association — Hospital Service in the United States, 1939, 432; Annual Reprint of the Reports of the Council on Pharmacy and Chemistry, 567; New and Non-Official Remedies 567
Bacon—Anus, Rectum, Sigmoid Colon 179
Bray—Synopsis of Clinical Laboratory Methods 53, 55
Brickel—Surgical Treatment of Hand and Forearm Infections 365
Crossen-Crossen—Operative Gynecology 633
de Kruif—Toward a Healthy America 432
Dick—Scarlet Fever 179
Dooley—Interns Handbook 179
Findley—Priests of Lucina 501
Fluhmann—Menstrual Disorders 432, 436
Friedenwald-Morrison-Morrison — Clinics on Secondary Gastro-Intestinal Disorders: Reciprocal Relationships 432
Harrison—Failure of the Circulation 365, 367
Imperatori-Burman—Diseases of the Nose and Throat 632
Insurance Statistical Service of North America—Standard Bodyparts Adjustment Guide 758
Matsner—The Technique of Contraception 115
Myer—Life and Letters of Dr. William Beaumont 432, 435
Niemoeller-Marton—Superfluous Hair and Its Removal 758
Rankin-Graham—Cancer of the Colon and Rectum 504
Richards-Walker—Otolaryngology in General Practice 633
Rypins—Medical State Board Examinations 502
Sharp—Practical Micro-Biology and Public Health 758
Soper—Clinical Gastro-Enterology 757
Spicer—Trauma and Internal Disease 224
Vaughan—The Practice of Allergy 568
Wolf—Endocrinology in Modern Practice 432, 435
Young—Doctor Bradley Remembers 53, 54

Breast, Cancer of the 449
Bronchi of children, The management of organic foreign bodies in the trachea and: illustrated with lantern slides 275
Bronchiectasis: a consideration of its causes and its prevention 332
Brucelliasis 142
Bulgarian treatment of Parkinsonism 707
Caecum simulating acute appendicitis, Fish-bone perforating the 173
California goes socialized medicine 120
Cancer of the breast, 449; — — — rectum, 663; *Economic status and the control of —* 213
Candy or alcohol 329
Carcinoma corporis uteri 398
Cataract, Fistulizing cicatrices and prolapse of the iris, following imperfect healing of the incision for extraction of 711
Caecum, Diverticulitis of the: with case report 25
Cervical dystocia 300
Changing era in medical economics, The 641
Chemistry of intelligence, The 625
Childhood, The development of helpful mental habits in 666
Children, The significance of abdominal pain in, 518; The management of organic foreign bodies in the trachea and bronchi of —: illustrated with lantern slides, 275; Treatment of hemangiomas and lymphangiomas in infants and —, 263; The socialization of — 747
Cholecystitis and cholelithiasis, The surgical management of 390
Cholelithiasis, The surgical management of cholecystitis and 390
Cholera, John Snow's work on 628
Circulatory efficiency, Tests for peripheral 478
Clinics for mental diseases, The relation of State hospitals to out-patient 731
Cold, Prevention of the common 138

Colleges
Medical College of Virginia 437
University of Virginia 438

Colon, Roentgen ray examination of the 143
Conjunctivitis, Anilin dye dermato-: report of a case 47
Coronary thrombosis: factors in immediate prognosis 417
Cortical extract therapy, Case of Addison's disease with failure of: case report 530
Country doctor, Recollections of a 68
Cushing, Harvey: a perfectionist 700
Dean is dead, The 181
Death, Painless 723
Deaths (see *Obituary Record*).
Deficiency disease, Nutritional: with special reference to vitamin B — 335
Degenerative diseases to industrial efficiency, Relation of 453
Dermatitis with tobacco being the probable source of etiological agent, Arsenical exfoliative: preliminary report 660
Dermato-conjunctivitis, Anilin dye: report of a case 47
Diabetic, The general care of a 291
Diets, One hundred twenty underweight cases treated with insulin and 484
Differential diagnosis, The blood smear in 99
Dilantin: a report on its use at Virginia State Colony for Epileptics and Feebleminded 522
Disc, Herniation of the intervertebral: a report of two cases, 103; — — — — — and associated lesions: with report of cases 575
Discs, Sciatic neuritis and low back

pain caused by rupture of the intervertebral 656
Diverticulitis of the cecum: with case report 25
Doctor, Recollections of a country, 68; — Bradley Remembers, 54; — Bray's book: Synopsis of Clinical Laboratory Methods 55
Doctors and doctoring, Washington's predilection for 65
Doctor's case, The white 366
Dystocia, Cervical 300

Eclampsia 456
Economics, Dr. Peter's reaction to the changing era in 751
Edema, The significance and management of ankle 171

Editorials
A. A. P., The 54th meeting of the 367
Allergy, Practice of 568
Beaumont's connection with Virginia, William 435
Blue spit 309
Boerhaave 181
Book and a moral, A good 367
Bradley remembers, Dr. 54
Bray's book, Dr. 55
California goes socialized medicine 120
Cancer of the colon and rectum 504
Circulation, Failure of the 367
Cushing, Harvey: A perfectionist 700
Dean is dead, The 180
Doctor, What it means to be a 760
Doctor's case, The white 366
Emigre problem, The 309
Endocrine dilemma, The 245
Endocrinology, Wolf's 435
English backdrop, The 116
Flippin, Dr. J. C., is dead 180
Genius: a birthright 759
Headache powders, The Government looks at 308
Health program laid before Congress, A national 120
Health of primitive man, The 505
Hibernation, Human 434
Hospital insurance: time for action 117
Hospitals exempted from social security 699
Ice for medical treatment 434
Landis comes to the University, Dr. 503
Magnum opus 568
Marriage protection bill 635
Medical care, The British experience with 116
Medical philately 760
Medical Society of Virginia, How old is the 759
Medicine and the muse 56
Meet next year, Where shall we 634
Menstrual disorders 436
Muse and medicine, The 56
Mussolini, Medical 366
North Carolina Medical Journal 699
Nurses, Licensed subsidiary, 434; — — — again 505
Old are we, How 759
Philately, Medical 760
Pneumonia typing stations, 181; Fifty kinds of —, 245; Sulfapyridine in — 369
Professor comes to the University, A 503
Record of accomplishment 504
Rankin and Grahan's book 504
Reed day, Walter 308
Sulfanilamide et al under one cover 504
Sulfapyridine in pneumonia 369
Syphilis, Results of drive against, 504; — in the world of tomorrow 698
Tar heel is born, A 699
Therapeutics, The teaching and practice of 433
Time for action, A 117
Trout, Hugh Henry 697
Tuberculosis, Early diagnosis in 309
Typing stations, Pneumonia 181
White doctor's case, The 366
Wilbur addresses 247
Wolf's endocrinology 435

Emigre problem, The 309
Encephalitis without apparent cause, Acute 529
Endocrine dilemma, The 245
Endocrinology, Pediatric, 605; Wolf's — 435
English backdrop, The 116
Epileptics and feeble-minded, A report on the use of sodium 5, 5-diphenyl hydantoinate in fourteen selected cases of epilepsy at the Virginia State Colony for 522
Erythrocyte sedimentation phenomenon, The: a review 409
Euthanasia 723
Exanthem subitum 401
Extremities, Lymphedema of 345
Eye infection, Oligoseptic treatment of 404

Farm Security Administration in Northampton County, Medical service through the 752
Feeble-minded, A report on the use of sodium 5, 5-diphenyl hydantoinate in fourteen selected cases of epilepsy at the Virginia State Colony for epileptics and 522
Female generative organs, Anomalies of the: with report of a rather remarkable case 593
Fetus complicating pregnancy, Hydrocephalus of the: a report of two cases 288
Fever, Clinical manifestations of acute rheumatic: age, incidence, diagnosis and treatment 322
Fibroid tumors, The many-sided problem presented by 716
Finikoff's treatment for surgical tuberculosis, Preliminary report on Dr. Alexander: with a summary of 14 cases 596
Fish-bone perforating the caecum simulating acute appendicitis 173
Fixation of fractures, Sleeve wire: a method of — of fractures in which the fragments are separated: report of 44 cases of fractures of the proximal end of the tibia 223
Flippin, Dr. J. C.: The dean is dead 180
Forceps, Kielland 653
Foreign bodies in the trachea and bronchi of children, The management of organic: illustrated with lantern slides 275
Fractures, Sleeve wire fixation of: a method of fixation of — in which the fragments are separated: report of forty-four cases of — of the proximal end of the tibia 223

Gallbladder infection: cholecystitis and cholelithiasis 390
Gastro-intestinal disease, Functional 302
Gastroscopy to the internist, The practical value of 209
Generative organs, Anomalies of the female: with report of a rather remarkable case 593
Glomerulonephritis, Acute: some observations on clinical course, prognosis and treatment 226

Hay fever, Diagnostic methods which have served me best in determining sinus disease and so-called 465
Headache powders, The government looks at 308
Healing process, The: general principles 357
Health examination, The value of the periodical, 164; A national — program laid before Congress, 120; — insurance, 116; The — of primitive man 505
Heart failure on the liver, The effects of protracted and recurrent congestive 1
Hemangioma of the vertebrae 473
Hemangiomas and lymphangiomas in infants and children, Treatment of 263
Hemiparesis, aphasia and psychosis, So-called spontaneous subarachnoid hemorrhage with transient: report of a case 257
Hemochromatosis: a study of three cases 79
Hemoglobin concentration, Body weight and 591
Hemoglobinuria, Paroxysmal: report of a case in a child four years old 737
Hemorrhage with transient hemiparesis, aphasia and psychosis, So-called spontaneous subarachnoid: report of a case 257
Hernia, The advantages of the abdominal approach to, 395; *Intra-abdominal* —, 620; Strangulated — 169
Herniation of the intervertebral disc: a report of two cases, 103; — — — — — *and associated lesions: with report of cases* 575
Herpes zoster, Neo-arsphenamine in: case reports 406
Hibernation, Human 434
Hormones, A simplified classification of commercial preparations of sex 191
Hospital care for the indigent and the low income group: a plan for subsidizing the accessories of medicine 513
Hospitals to out-patient clinics for mental diseases, The relation of State, 731; —: a popular exemption 699
Human hibernation 434
Hydatid mole: case report 94
Hydocephalus of the fetus complicating pregnancy: a report of two cases 288
Hygiene of swimming, The 32
Hymen, Imperforate: report of a case 355

Incubator for premature infants, An electric 408
Indigent and low income group, Hospital care for the: a plan for subsidizing the accessories of medicine 513
Industrial efficiency, Relation of degenerative diseases to 453
Infant, The premature 729
Infants and children, Treatment of hemangiomas and lymphangiomas in, 263; An electric incubator for premature —, 408; Diseases of —: exanthem subitum 401
Injection treatment with and without ligation: report of 500 cases of varicose veins 735
Inspection of aliens, Trachoma and the medical 674
Insulin and diets, One hundred twenty underweight cases treated with 484
Insurance, Health 116
Intelligence, The chemistry of 625
Internist, The practical value of gastroscopy to the 209
Intervertebral disc, Herniation of the: a report of two cases, 103; — — and associated lesions, Herniation of the: with report of cases, 575; — discs, Sciatic neuritis and low back pain caused by rupture of the 656
Intestinal obstruction, 610; — —, 169; Functional gastro- — disease 302
Iris following imperfect healing of the incision for extraction of cata-

ract, Fistulizing cicatrices and prolapse of the 711

Jaundice in typhoid fever: a case report 740
Jurisprudence, Medical: the medical witness 460

Keratomalacia, A case of malignant 293
Kidney pathology in ankle edema 171
Kielland forceps 653

Landis, Eugene M.: a professor comes to the University 503
Lawyer-doctor, attention 238
Leukemia, Monocytic 487
Leukopenic index in pediatric allergy, The 108
Liver, The effects of protracted and reconcurrent congestive heart failure on the, 1; *Recent ideas on — function,* 479; Irreparable damage to — and pancreas in hemochromatosis 79
Ligament, Varicose veins of the broad 218
Luer syringe spring for use in venipuncture, A 678
Lymphangiomas in infants and children, Treatment of hemangiomas and 263
Lymphedema of extremities 345
Lymphogranuloma venereum: The treatment of benign rectal stricture 20

Magnum opus 568
Malaria in the United States, Mortality from 339
Mandelic acid, A clinical study of the therapeutic usefulness of 255
Marital, Pre-, physical examination required in New York 534
Marriage protection bill, The 635
Mastoiditis resulting in acute suppurative arthritis 146
Medical Society of Virginia, presidents and places of meetings, 537; Reports for Seventieth Annual Session of the — — — —, 538; Program of the — — — —, Seventieth Annual Session, 562; — — — —: where shall we meet next year, 634; — — — —, presidential address, 641; Minutes of the Seventieth Annual Session of the — — — —, 679; Hugh Henry Trout, President of the — — — —, 697; Proceedings of the Council of the — — — —, 241; Richmond, convention city for Seventieth Annual meeting of — — — —, October 3, 4, and 5, 1939, 426; *The changing era in — economics,* 641; — economics: presidential address, 49; Dr. Peter's reaction to the changing era in — economics, 751; The relation of the veterinarian to the — profession, 36; The present status of the — treatment of peptic ulcer, 317; Resolutions of Augusta County — Association relative to the care of the — needy, 425; — jurisprudence: the — witness, 460; *A plan for relieving the burden of — costs* 516
Medicine, Snares and pitfalls in, as shown in the review of three cases: brilliant results and cures in modern — as in two cases, 151; — and the muse, 56; The pathologist looks at —, 447; Hospital care for the indigent and the low income group: a plan for subsidizing the accessories of — 513
Meningitis of otogenic origin with recovery, A case of streptococcus 267
Menstrual disorders 436
Mental diseases, The relation of State hospitals to out-patient clinics for, 731; *The development of helpful — habits in early childhood,* 666; The use of shock therapy in the treatment of the — disorders 197
Mentally sick in Virginia, The problem of caring for the 6
Mesenteric adenitis, Review of literature on, 105, 361; *Partial occlusion of superior — artery* 235
Metabolism and therapeutic uses of sulfur and sulfur compounds 489
Molar pregnancy 94
Monocytic leukemia 487
Monstrosities in obstetrics 44
Mortality from malaria in the United States, 339; The responsibility of the general practitioner in the prevention of — in acute abdominal conditions 169
Mussolini, Medical 367
Myxedema 162

National health program laid before Congress, A 120
Neo-arsphenamine in herpes zoster: case reports 406
Negro and their response to therapy, Tuberculosis in the 381
Nephritis, Acute glomerulo-: observations on clinical course, prognosis and treatment 226
Nervous system, Preparation of belladonna root in treatment of diseases of central 707
Neuroses, Anxiety 719
Neuritis and low back pain caused by rupture of the intervertebral discs, Sciatic 656
Newborn and the premature from the pediatric viewpoint, Care and feeding of the 158
Nicotinic acid in pellagra and related conditions, Observations on the therapeutic effects of 282
North Carolina State Medical Journal 699
Nurses, Licensed subsidiary, 434; — — — again 505
Nutritional deficiency disease: with special reference to vitamin B deficiency 335

Obituary Record
Dr. Walter Jones Adams 640
Dr. William Clark Ashworth 64
Dr. John McKendree Bailey 640, 706
Dr. Reuben William Bennett 511
Dr. William Stone Blakiston 64, 128
Dr. John W. Bowdoin 316
Dr. Oliver S. Burns 190
Dr. Peter Prentiss Causey 640
Dr. Jesse N. Clore 64, 128
Dr. James Kennedy Corss 446
Dr. William Richardson Culbertson 766
Dr. Cecil Dabney 254
Dr. James Beverly DeShazo 574
Dr. J. M. Dougherty, Jr. 446
Dr. Millard Percy Doyle 380, 512
Dr. John Emmet Early 64
Dr. Jeffrey Neese Elder 380, 446
Dr. George Oliver Emerson 64
Dr. Wm. Edgar Fahrney 190
Mr. Benjamin T. Fairchild 316
Dr. James Carroll Flippin 189, 254, 380
Dr. Antonio Gentile 766
Dr. Randolph Moore Gilliam 128
Dr. James Massie Gleason 574
Dr. Lyle F. Hansbrough 127
Dr. John Lewis Harvey 511
Dr. Henry Holmes Hunter 511
Dr. John Bruce James 190
Dr. Calender Lafayette Johnson 574
Dr. Bittle Cornelius Keister 640
Dr. Beverly Randolph Kennon 126
Dr. Margaret Packer Forcee Kuyk 127, 316
Dr. Paul Rutherford MacFadyen, Sr. 64
Dr. Herbert Mann 511
Dr. Charles Horace Mayo 446
Dr. William J. Mayo 574
Maj. Gen. Walter Drew McCaw 511
Dr. Hiram Kilgore McConnell 511
Dr. Haliburton McCoy 511
Dr. Randolph McCutcheon 574
Dr. Joseph Thompson McKinney 190, 254
Dr. Garland Lightfoot Morriss 254
Dr. Ephraim Roland Mulford 316
Dr. James Blaine Muncy 127
Dr. John Henry Neff 190
Dr. Lewis Gravely Pedigo 63
Dr. John Alsop Pilcher, Jr. 253
Dr. Harmon L. Pippin 128
Dr. Lawrence Taylor Price 573
Dr. Samuel W. Price 446
Dr. Buckner Magill Randolph 512
Dr. John Lewis Rawls 640
Dr. Walter Carlton Rosser 64, 128
Dr. Robert Herman Rowe 640
Dr. James Edward Rudasill 640
Dr. Alexander Augustus Sizer 127, 190
Dr. Frederick L. Smith 316
Rear Adm. George Tucker Smith 254
Dr. Hunter B. Spencer 128
Dr. Virgil Eubank Stiff 190
Dr. James Thomas Strickland 64
Dr. Pitt Edward Tucker 379
Dr. Adam George White 511
Dr. Thomas Henry Wilkins 574
Dr. Eugene Y. Willis 127
Dr. John Woolfolk Winston 316

Obstetrical amnesia, analgesia, and anesthesia: with special attention to their efficiency and safety to mother and child 607
Obstetrics, Operative: some remarks, 412; Placenta previa in —, 623; Kielland forceps in —, 653; Monstrosities in —, 44; Cervical dystocia in — 300
Obstruction, Intestinal 611
Oligoseptic treatment of eye infection 404
Osteitis deformans in field of otolaryngology 742
Otogenic acute suppurative arthritis, 146; A case of streptococcus meningitis of — origin with recovery 267
Otolaryngology, Paget's disease of the bone in the field of 742

Paget's disease of the bone in the field of otolaryngology 742
Painless death 723
Pancreas and liver, Irreparable damage to, in hemochromatosis 79
Paralysis agitans (Parkinson's disease) treated with preparation of belladonna root 707
Parkinsonism with a preparation of belladonna root, The treatment of 707
Pathologist looks at medicine, The 447
Patients think, What our 109
Pediatric allergy, The leukopenic index in, 108; Care and feeding of the new-born and the premature from the — viewpoint, 158; — endocrinology 605
Pediatrist, psychiatrist and psychologist, The correlation between 96
Pedigo, Dr. Lewis G.: Honor to whom honor is due 533
Pellagra and related conditions, Observations on the therapeutic effects of nicotinic acid in 282
Peptic ulcer as a clinical problem, Some newer viewpoints on, 204; *The present status of the medical treatment of — —* 317
Peripheral circulatory efficiency, Tests for 478

Physical illness, Psychiatric aspects of 92
Physician, On choosing a 434
Placenta previa 623
Pneumonia, Early diagnosis in, 129; *Diagnosis and treatment of lobar —,* 132; *Type III pneumococcic — with report of a case successfully treated with specific serum,* 136; Sulfapyridine in —, 369; Fifty kinds of —, 245; — typing stations 175, 181
Poisoning, Acute arsenic 148
Practitioner in the prevention of mortality in acute abdominal conditions, The responsibility of the general 169
Pregnancy, Hydrocephalus of the fetus complicating: a report of two cases, 288; Molar —, 94; Eclampsia in —, 456; Abdominal pain complicating — 530
Premature infant, The, 729; Care and feeding of the newborn and the — from the pediatric viewpoint 158
Presidential address, 49; — —, seventieth annual meeting of the Medical Society of Virginia 641
Prostatic resection, Experience with 73
Psychiatric aspects of physical illness 92
Psychiatrist and psychologist, The correlation between the pediatrist 96
Psychoanalysis, A commentary concerning 644
Psychologist, The correlation between the pediatrist, psychiatrist and 96
Psychosis, So-called spontaneous subarachnoid hemorrhage with transient hemiparesis, aphasia and: report of a case 257
Puerperal septicemia, Sulfanilamide with report of the treatment of a case of 24

Rabellon in the treatment of Parkinsonism 707
Rankin and Graham's book 504
Recollections of a country doctor 68
Rectal examinations, Necessity of routine: case reports, 416; *The treatment of benign (lymphogranuloma venereum) — stricture* 20
Rectum, Cancer of the, 663; Treatment of painful lesions of the — in general practice 86
Reed, Walter, day 308
Rheumatic fever, Clinical manifestations of acute: age, incidence, diagnosis and treatment 322
Richmond: convention city for seventieth annual meeting of the Medical Society of Virginia, October 3, 4, and 5, 1939 426
Roentgen ray examination of the colon 143
Roseola infantum 401

Salpingitis, A new operation for the treatment of 42
Sciatic neuritis and low back pain caused by rupture of the intervertebral discs 656
Sedimentation phenomenon, The erythrocyte: a review 409
Septicemia, Sulfanilamide with report of the treatment of a case of puerperal 24
Serum, Type III pneumococcic pneumonia with report of a case successfully treated with specific 136
Sex hormones, A simplified classification of commercial preparations of 191
Shock therapy in the treatment of the affective disorders, The use of 197
Sinus disease and so-called hay fever, Diagnostic methods which have served me best in determining 465
Sinuses, Some practical considerations of the 468
Sirenomelus: case report 44
Sleeve wire fixation of fractures: a method of fixation of fractures in which the fragments are separated: report of forty-four cases of fractures of the proximal end of the tibia 223
Snow, John: work on cholera 628
Social security alias state medicine 236
Socialization of children, The 747

Societies, Associations, Etc.
Alexandria Medical Society 372
Amelia County Medical Society 311
American Academy Ophthalmology and Otolaryngology 764
American Association for Advancement of Science 123
American Association of Genito-Urinary Surgeons 444
American College of Physicians 315
American College of Surgeons 764
American Medical Association 373, 423
American Public Health Association 764
American Urological Association 445
Arlington County Medical Society 58
Association of Southern Railway Surgeons 442
Augusta County Medical Society 570
Botetourt County Medical Society 122
Chesapeake and Ohio Railroad Surgeons 796
Danville Pittsylvania Academy of Medicine 183
Dickenson-Buchanan County Medical Society 507
Fairfax County Medical Society 701
Fauquier County Medical Society 570
Fourth District Medical Society 436
Fredericksburg Medical Association 58
James River Medical Society 57
Lynchburg Academy of Medicine 57
Manchester Medical Society 507
Medical Association of Valley of Virginia 311
Medical College of Virginia Ex-Internes Association 376
Medical Society of Northern Virginia 310, 762
Medical Society of Virginia 537, 538, 562, 701
Medical Society of Virginia, Council 241
Medical Society of Virginia, Cancer Committee 184
Neuropsychiatric Society of Virginia 188, 376
Norfolk County Medical Society 436
Northampton County Medical Society 121
North Carolina Medical Society 377
Patrick-Henry County Medical Society 121, 701
Petersburg Medical Faculty 58, 762
Roanoke Academy of Medicine 701
Richmond Academy of Medicine 58
Richmond Tuberculosis Association 186
Seaboard Medical Association of Virginia and North Carolina 59
South Atlantic Association of Obstetricians and Gynecologists 184
Southeastern Surgical Congress 252
Southern Surgical Association 61
Southern Tuberculosis Conference 705
Southside Virginia Medical Association 58
Southwestern Virginia Medical Society 635
Tidewater Surgical Club 184
Tri-State Medical Association of the Carolinas and Virginia 188
Virginia Academy of Science 376
Virginia, Maryland and District of Columbia Medical Society 377
Virginia Obstetrical and Gynecological Society 703
Virginia Pediatric Society 702
Virginia Radiological Society 702
Virginia State Board Medical Examiners 121, 569
Virginia Society of Ophthalmology and Oto-Laryngology 373
Virginia Tuberculosis Association 315
Virginia Urological Society 702
Warwick County Medical Society 183
Williamsburg-James City County Society 436
Wise County Medical Society 249

Socio-political economy 49
Sodium 5, 5-diphenyl hydantoinate in fourteen selected cases of epilepsy at the Virginia State Colony for Epileptics and Feeble-minded, A report on the use of 522
Spit, Blue 309
State medicine alias social security, 236; — —: a time for action 117
Stomatitis treated with sulfanilamide, Aphthous: report of two cases 528
Streptococcus meningitis of otogenic origin with recovery, A case of 267
Subarachnoid hemorrhage with transient hemiparesis, aphasia and psychosis, So-called spontaneous 257
Sulfanilamide with report of the treatment of a case of puerperal septicemia, 24; Aphthous stomatitis treated with —: report of two cases, 528; — et al under one cover 504
Sulfapyridine in pneumonia 369
Sulfur and — compounds, The metabolism and therapeutic uses of 489
Syphilis problem in Roanoke, The, 12; — campaign: a record of accomplishment, 504; *Diagnosis of —,* 294; — in the world of tomorrow 698
Swimming, The hygiene of 32

Tar heel born, A 699
Therapeutics, The teaching and practice of 433
Thrombosis, Coronary: factors in immediate prognosis 417
Thyroid atrophy or removal resulting in myxedema 162
Tibia, Sleeve wire fixation of fractures: a method of fixation of fractures in which the fragments are separated: report of forty-four cases of fractures of the proximal end of the 223
Tobacco being the probable source of the etiological agent, Arsenical exfoliative dermatitis with: preliminary report 660
Toxemia of pregnancy 456
Trachea and bronchi of children, The management of organic foreign bodies in the: illustrated with lantern slides 275
Tracheobronchial tree, The diagnosis and treatment of obstructing tuberculous lesions of the 221
Tracheobronchitis, Tuberculous 387
Trachoma and the medical inspection of aliens 674
Trout, Hugh Henry 697
Tuberculosis, Is Virginia doing its duty toward the advanced case of, 650; Preliminary report on Dr. Alexander Finikoff's treatment for surgical —: with a summary of 14 cases, 596; — *diagnostic standards,* 112; — in the negro and their response to therapy 381
Tuberculous lesions of the tracheobronchial tree, The diagnosis and treatment of obstructing, 221; — *tracheobronchitis* 387
Tumor clinics may be certified 424
Tumors, The many-sided problem presented by fibroid 716
Typhoid fever, Jaundice in: a case report 740

Ulcer, The present status of the medical treatment of peptic, 317; Some newer viewpoints on peptic — as a clinical problem 204

Underweight cases treated with insulin and diets, One hundred twenty 484
Undulant fever, Treatment of 304
Urinary tract infections, A clinical study of the therapeutic usefulness of mandelic acid in the treatment of 255
University, A professor comes to the 503
Uteri, Carcinoma corporis 398

Varicose veins, Report of 500 cases of: injection treatment with and without ligation, 735; — — *of the broad ligament* 218
Vaughan, Warren T., The practice of Allergy: Magnum opus 568
Venipuncture, A Luer syringe spring for use in 678
Vertebrae, Hemangioma of the 473
Veterinarian to the medical profession, The relation of 36
Virginia, The problem of caring for the mentally sick in, 6; Is — doing its duty toward the advanced cases of tuberculosis 650
Vision, Defective, resulting from certain diseases 151
Vitamin B deficiency, Nutritional deficiency disease: with special reference to 335

Walter Reed Day 308
Washington's predilection for doctors and doctoring 65
Weight and hemoglobin concentration, Body 591
Wilbur addresses, The 247
Woman's Auxiliary to the Medical Society of Virginia, report of Richmond convention 695
Wounds, Healing process in 357

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CONTENTS

The Effects of Protracted and Recurrent Congestive Heart Failure on the Liver. Fredrick A. Willius, M. D., Rochester, Minn. 1

The Problem in Caring for the Mentally Sick in Virginia. R. Finley Gayle, Jr., M. D., Richmond, Va. 6

The Syphilis Problem in Roanoke. W. W. S. Butler, M. D., Roanoke, Va. 12

The Treatment of Benign Rectal Stricture (Lymphogranuloma Venereum). Harry J. Warthen, M. D., Richmond, Va. 20

Sulfanilamide, With Report of the Treatment of a Case of Puerperal Septicemia. Alexander F. Robertson, Jr., M. D., Staunton, Va. 24

Diverticulitis of the Cecum—With Case Report. J. Stuart Staley, M. D., Marion, Va. 25

The Hygiene of Swimming. H. Marshall Taylor, M. D., Jacksonville, Fla. 32

The Relation of the Veterinarian to the Medical Profession. William H. Feldman, D. V. M., M. S., Rochester, Minn. 36

A New Operation for the Treatment of Salpingitis. Philip Jacobson, M. D., Petersburg, Va. 42

Sirenomelus—Case Report. Chas. W. Putney, M. D., Staunton, Va. 44

Anilin Dye Dermato-Conjunctivitis—Report of a Case. W. F. Bryce, M. D., Richmond, Va. 47

Presidential Address. Philip S. Smith, M. D., F. A. C. P., Abingdon, Va. 49

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 50

PUBLIC HEALTH STATISTICS 51

TRUTH ABOUT MEDICINE 53

BOOK ANNOUNCEMENTS 53

EDITORIAL 54

DEPARTMENT OF CLINICAL AND MEDICAL EDUCATION OF THE MEDICAL SOCIETY OF VIRGINIA 56

PROCEEDINGS OF SOCIETIES 57

NEWS NOTES 59

OBITUARY RECORD 63

INDEX TO ADVERTISERS—Advertising Page 6

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THE EFFECTS OF PROTRACTED AND RECURRENT CONGESTIVE HEART FAILURE ON THE LIVER.*

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Discussions dealing with heart failure too frequently are confined to a consideration of the heart alone. Such a limitation, obviously, disrupts the continuity of the theme, owing to the fact that heart failure results in circulatory changes that influence the function and condition of the various organs and tissues of the body. The reactions of these structural components to circulatory disturbances differ and an understanding of the variations is of definite importance. It thus becomes apparent that the effects of heart failure on the circulation in general and therefore on the ultimate periphery (arteriolar-capillary bed) must be considered and also the effects on the function and structure of vital organs such as the lungs, liver, kidneys, brain and the other tissues of the body. In this paper I will confine my remarks chiefly to the liver.

Any cardiopathy, regardless of the underlying pathologic change, may eventuate in the well-known syndrome of congestive heart failure. While most of the lesions or stresses responsible for heart disease primarily and predominantly affect the left side of the heart, ultimate failure of the right side of the heart occurs. Under this set of circumstances stasis in the systemic venous circulation ensues and varying degrees of passive congestion of the liver occur as a result of stasis in the portal circulation.

Chronic passive congestion of the liver results when heart failure becomes protracted or recurs frequently. It is not uncommon for the liver to increase enormously in size so that it extends to the level of the umbilicus or even below this level. At times, the degree of portal stasis is disproportionate to the stasis in the systemic circulation, probably because the obstruction to the flow of blood in the hepatic veins is greater than the obstruction to the flow of blood in the inferior vena cava. The capillaries of the portal system also possess a relatively high degree of permeability.

The effects of chronic passive congestion on the liver have been controversial for nearly a century; the issue involved chiefly the production of hepatic cirrhosis. Becquerel, in 1840, was the first to formulate the belief that the chronic passive congestion resulting from heart failure produced hepatic cirrhosis. This opinion ultimately resulted in the rather widespread acceptance of the term "cirrhose cardiaque". At irregular intervals during the ensuing years the literature on this subject has been amplified greatly by the opinions of protagonists[18, 37] and antagonists[1, 8, 10-17, 19-21, 23, 24, 29-31, 34-36, 38, 40-42] of Becquerel's tenets. Budd, as early as 1857, made the observation that the liver in some cases of chronic valvular disease was decreased in size, but he was reluctant to believe that this resulted from heart failure alone.

In 1883, Sabourin reported the results of his classic studies on chronic passive congestion of the liver. In general, he accepted Becquerel's views. He found that the degenerative processes, as they occurred in cases of congestive heart failure, resulted in capillary dilatation and trabecular atrophy. He found that the new connective tissue first was formed in these zones of atrophy about the central vein. He expressed the opinion that the sequence of events leading to fibrosis depend on a thickening and contraction of the strands of connective tissue which line the spaces about the central veins and that the thickening and condensation eventually lead to the stage of central cirrhosis. He said that this type of cirrhosis is readily recogniz-

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able, because it connects central vein to central vein or sublobular vein and thus encircles the hepatic tissue of the peripheral portion of adjacent lobules. Such an arrangement obviously produces an apparent reversal of the usual order, the portal system at times being in the center of the lobule.

Parmentier, in 1889, recorded the first experimental work on this subject. He was able to produce chronic engorgement of the liver in animals by the creation of tricuspid regurgitation but was not successful in producing hepatic cirrhosis.

Lambert and Allison, in 1916, studied 112 cases of chronic passive congestion of the liver and recognized five types of changes. The first type consisted chiefly of capillary dilatation and atrophy of the central cells; the second type consisted of central degeneration with or without congestion; the third type consisted of a central accumulation of fat with hyperemia or necrosis of the mid-zone; the fourth type consisted of central necrosis, which usually was associated with hemorrhages, and the fifth type was described as a "collapse fibrosis", a condition which the authors considered synonymous with "cardiac cirrhosis". The last type occurred in 14.2 per cent of their cases.

Ophüls, in 1926, found "cardiac cirrhosis" in only 0.7 per cent of 3,000 necropsies.

It was not until 1930 that Zimmerman and Hillsman brought forth convincing experimental evidence that hepatic cirrhosis may result from severe chronic passive congestion.

In a recent study of seventy-five cases of cardiac disease in which prolonged single or multiple episodes of congestive heart failure had occurred, Boland and Willius reported the changes which they found in the liver. These cases were selected from a group of 500 cases of chronic passive congestion of the liver, but the exclusion of many cases was necessary owing to the short duration of the heart failure. Edema of the dependent portions of the body was present in all the cases selected for study and most of the principal forms of heart disease occurred in the series. The ages of the patients ranged from five to eighty-five years, the average age being 55.6 years. Fifty-six of the patients were males and nineteen were females. Ascites occurred in 86.6 per cent of the cases and icterus occurred in 14.6 per cent.

HISTOLOGIC CHANGES

The histologic changes found in the livers permitted the cases to be divided into three general groups: (1) A group demonstrating atrophy, necrosis or both, in the hepatic lobule without evidence of condensation of the reticulum or cirrhosis; (2) a group presenting atrophy or necrosis together with condensation of the reticulum and thickening but without cirrhosis, and (3) a group showing actual hepatic cirrhosis.

Group 1.—Thirty-seven cases (49 per cent) were placed in this group. The microscopic changes in these cases were similar to those generally described as occurring in chronic passive congestion. The atrophy or necrosis was always most marked in the central third of the hepatic lobule, especially immediately adjacent to the central vein. The degeneration decreased in degree as the periphery of the lobule was reached. In some cases a variable degree of necrosis apparently was superimposed on the atrophic central lobular cells. When necrosis predominated in the central portion of the lobule, the hepatic cells surrounding the necrotic region usually showed some degree of atrophy. In many cases the degeneration extended from central vein to central vein, giving the appearance of reversed lobulation. The degree of degeneration was variable. In six cases there was only a minimal amount of central atrophy. In twenty-six cases there was a moderate to marked degree of atrophy in the central third of the lobule, with a decreasing amount of atrophy in the middle and peripheral zones. Marked necrosis of the central cells with atrophy in the peripheral cells was present in three cases. In seven cases there was marked atrophy of the central lobular cells with superimposed necrosis.

Group 2.—The second group comprised thirty-three cases (44 per cent). In these cases there was evidence of condensation of the reticulum in the degenerated regions. This condensation of reticulum was always most marked in the degenerated regions and seemed to vary proportionately to the degree of degeneration present. However, as was observed in the preceding group, marked degeneration might occur without a condensation of reticulum. The condensation appeared to have been caused by the collapse of the central portion of the lobule as a result of the destruction of the hepatic cells in that region. Close observation of the reticulum fibers revealed that they actually appeared thicker than the normal fibers. Reverse lobulation to some degree could be demonstrated in every case in this group. The reversed arrangement was most distinct in those cases with pro-

nounced condensation of reticulum. In some regions the condensed reticulum extended so well from central vein to central vein that a definite band of fibers could be seen surrounding the peripheral zones of the remaining hepatic tissue, a portal radicle being situated in the center of this apparently reversed lobule.

The degree of condensation and thickening of the reticulum varied in this group. In twenty-four cases the condensation was not pronounced; in seven it was moderate and in five cases it was marked. Cases showing a moderate and marked degree of condensation would probably be classified by some investigators as cases of "cardiac cirrhosis". However, with careful study of the sections, no proliferation of fibrous tissue was found but rather only condensation and thickening of preexisting reticulum fibers. For this reason such cases should be designated as demonstrating condensation of reticulum resulting from chronic passive congestion rather than being classified as cases of true cirrhosis.

Group 3.—Five cases (7 per cent) of the series presented a true cirrhosis. These cases showed marked degeneration of the central lobules and condensation of reticulum. Reversed lobulation was prominent. There appeared to have been almost complete destruction of entire lobules in certain scattered regions. Extensive collapse of the necrotic regions evidently occurred and portal radicles appeared to have been caught in the massive coalescence. In these regions proliferation of fibrous tissue had occurred and fibroblasts could be identified by the immersion oil objective. In addition, the normal architectural arrangement of the liver was disrupted and an increase in the number of lymphocytes was seen in some of the fibrotic regions. An apparent increase in the number of bile ducts was frequently observed. In three of the five cases there appeared to be adenomatous regeneration of hepatic tissue. The cirrhosis in these cases was not uniform throughout the sections but was scattered in an irregular manner. Between the regions of fibrosis the hepatic tissue was the site of central lobular degeneration, condensation and reversed lobulation. At times the bands of condensed reticulum could be seen to join regions of fibrosis. Indeed, it appeared that entire lobules had degenerated and collapsed in some regions, and that these regions served as sites for the proliferation of fibrous tissue. The patchy nature of the fibrosis and the intervening regions of central degeneration and condensation of reticulum made the picture differ considerably from that usually seen in advanced portal cirrhosis.

One case failed to show marked central destruction of the lobules, with condensation of reticulum and reversed lobulation. There was, rather, only a mild degree of central atrophy in lobules which persisted between the scattered regions of fibrosis. This case presented certain clinical features which suggested that the hepatic cirrhosis may have preceded the onset of congestive heart failure.

In three cases there was a history of repeated episodes of congestive heart failure with intervening periods of partial recovery, while in two cases there had been a single continuous period of congestive heart failure; in each of these cases periods of complete rest in bed had resulted in considerable improvement.

COMMENT

Mallory,[25–27] as well as earlier workers, insisted that in cases in which severe central necrosis of the liver cells was associated with congestive heart failure there were additional etiologic factors, particularly toxic or infectious agents. However, the clinical records and the associated postmortem findings in these cases do not correspond with sufficient regularity for the definite establishment of either a toxic or infectious origin for the necrosis. It is an acknowledged fact that many toxins exert their first demonstrable effects on the central cells of the hepatic lobule. Bollman, Mann and Magath[4–7, 28] have clearly shown that impairment of the circulation of the liver increases the action of many hepatic toxins. It is therefore not possible to exclude irrevocably the possibility of a concomitant toxic factor in these cases. That some factor besides chronic passive congestion may participate is suggested by the fact that one cannot predict from the clinical history or the physical findings whether the liver will reveal atrophy or necrosis. The contention for the toxic factor finds support in some cases by the demonstration of many polymorphonuclear leukocytes in the necrotic regions. However, these cells may invade sites of necrosis regardless of the cause of the necrosis.

It is interesting to recall that only five cases (7 per cent) of the entire group presented changes that conformed to all the requisites of hepatic cirrhosis, It appears reasonable that cirrhosis occurring as a result of chronic passive congestion will be found in those cases in which there have been repeated epi-

sodes of congestive heart failure rather than in those cases in which there has been sustained failure. If the chronic passive congestion is severe enough to produce necrosis of hepatic cells, it is severe enough to prevent proliferation of fibrous tissue and adenomatous regeneration. Certainly, then, the cirrhosis must develop during periods of partial or complete restorations of cardiac function.

On the basis of the experimental work of Bollman and Mann, together with the microscopic findings in these cases, it seems justifiable to postulate the genesis of cirrhosis. The degeneration resulting from chronic passive congestion of the liver appears to vary in its extent and severity in different lobules. Some lobules may be completely destroyed, whereas others show degeneration in only the central portion. The partially destroyed lobules probably are repaired, during intervals of improvement in cardiac function, to a state closely approximating normal, a thickened reticulum remaining as the only relic. When entire lobules are destroyed, the change appears to be irreparable and the microscopic findings certainly suggest that in some regions whole lobules have been completely destroyed. In these extensively degenerated regions a collapse of the reticulum apparently has occurred. One or more portal spaces frequently are found in the coalescent masses of reticulum. It is in these patches that proliferation of fibrous tissue and, at times, adenomatous regeneration of hepatic cells are observed. Bollman and Mann, in their report on experimental cirrhosis, suggested that the fibrous tissue developed from that already present about the portal spaces. This likewise may be the source of the fibrosis in these cases. The adenomatous regeneration probably proceeds from the few hepatic cells remaining in the collapsed lobule. It it therefore probable that, during the periods of partial cardiac recovery, fibrosis occurs in the region of complete lobular destruction. In the partially destroyed lobules, repair occurs; this restores the lobules to a state approaching normal. The rôle played by toxins as a contributory agent in the production of the cirrhosis is as obscure as it is in those cases in which necrosis occurs alone.

Grossly, three of the cirrhotic livers were described as being nodular and firm in consistency while the others demonstrated the typical mottling of the "nutmeg" type and offered increased resistance to cutting.

Little correlation occurred between the clinical history and the microscopic findings in this series of seventy-five cases. Ascites was present in each case of cirrhosis, but it was also found in 86.6 per cent of the entire series. Icterus occurred in one case of cirrhosis but was present in 14.6 per cent of the entire series. Obviously, neither ascites nor icterus could then serve as a diagnostic criterion of cirrhosis.

Liver function tests were made in only three of the seventy-five cases; this number is too few to allow correlation. However, the bromsulphalein test has been carried out in other cases. In these cases either temporary recovery occurred or necropsy was not permitted. These observations indicate that marked degrees of impairment of hepatic function, as expressed by the retention of the dye introduced into the patient's blood stream, are extremely uncommon. By denoting the grades of retention of the dye on a numerical basis (that is, one to four), it is found that in the majority of cases the retention is grade one and in a smaller group of cases it is grade two. Higher grades of retention rarely are encountered. It is probable that functional impairment of the liver, as determined by laboratory methods, would for the most part serve as an index to the degree of necrosis or atrophy rather than as an index to the degree of cirrhosis.

The most suggestive evidence available at this time in the clinical prediction that "cardiac cirrhosis" may be present in a given case probably may be inferred from the facts disclosed by this study. This evidence includes the history of recurrent, severe episodes of congestive heart failure for a relatively long time, with intervals of improvement in cardiac function when the liver receives some respite. However, in the clinical appraisal of the individual case this evidence appears to be of limited value, owing to the fact that even under these circumstances the development of true "cardiac cirrhosis" is uncommon.

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THE PROBLEM IN CARING FOR THE MENTALLY SICK IN VIRGINIA.*

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NOTE:—The statistics presented here were obtained from the State Hospital Board and from authoritative text books on psychiatry.

The problem of caring for the mentally sick has lately attracted widespread attention in this State. It is wholesome to note the increased interest in mental hygiene problems as demonstrated by the subjects of the various addresses shown on programs of non-medical groups, and the frequency with which constructive and intelligent editorials are written on this subject in the columns of our better newspapers throughout the State. The problem is not one of simply housing the mentally sick nor of segregating them from normal individuals, but it is also that which necessitates intelligent care and treatment of them.

Every physician in Virginia should be proud of its long and honorable record in the care of the mentally sick in this State. Virginia, as a pioneer in this field, boasts of the fact that the Eastern State Hospital at Williamsburg is the oldest public institution in the country solely for the care of the mentally sick. It was founded in 1773 by the Provincial Assembly of Virginia, and has continuously functioned at Williamsburg since April 28, 1774, when the first patient was received. The original building was burned in 1885. In 1828 it became necessary to open a second hospital for white patients in Staunton, which institution is now known as the Western State Hospital. Our colored hospital for the insane was first established near Richmond in 1869, and in 1882 patients were received at the present State Hospital at Petersburg. The Southwestern State Hospital was opened at Marion in 1887. In 1911 an institution for the epileptics was opened near Lynchburg, which institution has developed into the State Colony for Epileptics and the Feebleminded. An act of the recent General Assembly created a colony for the colored feebleminded on the Seward Farm near Petersburg, which property was owned by the Central State Hospital. This institution will be opened as soon as it is possible to complete it, and as far as we are able to ascertain, it will be the only institution for the care of the colored feebleminded, exclusively, in the United States. It will be a separate institution, with its own superintendent, as a unit of the State Hospital Board, under the supervision of the Director of State Hospitals.

Statistics concerning the extent of the mental problem for the whole United States, bring out the fact that there are more individuals occupying beds in mental hospitals today than there are sick persons in hospitals for every other reason, including tuberculosis.

It has been said statistically that insanity has been increasing during the past fifty years about three hundred times faster than the population, but these statistics are not so alarming when they are correctly analyzed and properly interpreted. This increase in insanity is due to a number of factors: (1) diagnosis of mental and nervous disorders is more critical and discriminating; people are being called insane today, who formerly had some other diagnosis. People were formerly regarded as "queer" but now are definitely diagnosed as being psychotic; (2) it is easier to count those who are mentally sick today, for the reason that there is a greater tendency to place the milder types of psychosis in institutions than there formerly was; (3) the life span of an individual has greatly increased in the last fifty years; more people now live to reach the age at which certain types of mental breakdowns occur. There has been an increase in the urban population, and it is an accepted fact that neurotic individuals break down more frequently under the pressure of urban life than when living in the quiet country-side.

The following figures give you an idea of the problem confronting us. 7,000 babies are born every twenty-four hours in the United States. Of these, many will be claimed by disease, but it is startling to know that of those who live to reach adulthood:

One out of 25 will become insane;
Four out of 25 will become profoundly neurotic;
Four out of 25 will become moderately neurotic;
Four out of 25 will become mildly neurotic; and
Twelve out of 25 will be fairly normal.

The figures concerning the adolescent situation—that is, the youths from thirteen to nineteen years of

*Read at the sixty-ninth annual meeting of the Medical Society of Virginia in Danville, Va., October 4-6, 1938.

age, inclusive—are no more comforting. There are supposedly 14,000,000 adolescents who come within this age bracket. Of these, there are:

In School	7,500,000
Not in School (Illiterates))	200,000
Married	800,000 (650,000 girls)
Employed	4,500,000 (450,000 under 18)
Feebleminded	300,000
Insane	15,000
Delinquent	100,000
Serious behavior problems	75,000
Deaf or blind	10,000
Physically deficient—diseased and defective	500,000

For every one hundred thousand of the general population, seventy-six mentally defective persons are admitted to mental institutions each year. Statistics show that 10 per cent of the population of the state of New York is mentally defective, one person in twenty-two spending a part of his life in a hospital for the insane. Four of every one hundred children who enter school in the United States and Canada will sometime be admitted to a mental hospital. It is estimated that there are 650,000 feebleminded persons at large, outside of institutions. The number of epileptics in the United States (there are nearly 200,000) is increasing year by year, and of these a large percentage is feebleminded. There are over one hundred thousand paupers in alms houses—this is a rapidly shifting group, drifting into, and out of, these institutions, which suggests that they are inefficient and low grade mentally. We must face the appalling fact that 75,000 adults (50 per cent of them under forty years of age) go insane each year in the United States and are committed to institutions. These figures represent new admissions, and do not include the feebleminded and epileptic.

There are about 750 public and private institutions devoted to the care of the insane, the defective, and the epileptic in this country. They receive considerably over a hundred thousand patients each year—not including over 25,000 re-admissions. It is a fact worthy of contemplation that 25 per cent of all admissions to institutions for the insane have been previously admitted from one to five times.

We should not fail to consider the fact that there are many mildly psychotic individuals who never reach public hospitals but who are cared for in homes. Likewise, there are the borderline psychoneurotic disturbances which are often just as serious and disabling in their consequences as the more severe ones, yet they do not always require institutionalization. It is conceivable that only a very small portion of this great army of mentally sick persons come to the attention of a psychiatrist during the stage of incipiency, when psychiatry is often able to offer something constructive in the treatment of these patients. Physicians will all admit that there are many persons threatened with unrecognized psychotic upsets, who are to be found in the consulting room of every busy practitioner. It is unfortunate that so few of our profession, outside of the specialty of psychiatry, have a real concept of the problem, and are in reality sympathetic with the subject; even fewer physicians understand the proper psychiatric approach. It is undoubtedly true that many psychiatrists are born, and no matter how long an attempt may be made to train some individuals in the field of psychiatry, the effort will never be successful, whereas, many physicians practice psychiatry successfully, without knowing it, who have had little or no formal training. Just think what a splendid psychiatrist that individual could be, were he cognizant of his inherent ability in the field, and how much more he could accomplish with the proper amount of formal training!

In a recent fiscal year, there was expended for the mentally diseased in the United States over one hundred million dollars. We are annually taxed for the care of the mentally diseased, the defectives, and the delinquents, 35 per cent of the total expenditures of all the states for public education.

There are more than 10,000 patients actually in the State hospitals of Virginia, and there are over 15,000 on the rolls of these institutions, which number includes those on parole. It costs the State of Virginia more than $2,500,000 per year for the care of these patients.

The total cost of caring for a patient in a State hospital in Virginia is $148.19 per year, which includes all services and capital outlay; whereas, in Maryland they spend $214.25; in South Carolina, $223.68; and in the United States as a whole $253.17 per patient per year. A striking comparison is the amount paid for food and in salaries and wages for personnel. Virginia spends out of the yearly per capita cost only $54.00 or 36 per cent of the patient's dollar, whereas, in the United States as a whole, the amount paid in salaries and wages per patient is $122.07 or 48 per cent. New York spends approximately $191.00 per patient per year; the United States Government at the St. Elizabeth's Hos-

pital in Washington, spends 70 per cent of its patient's maintenance dollar for salaries and wages. In 1937 Virginia spent 2.3 per cent of its total expenditures on State hospitals and in the same year Massachusetts spent from fifteen to 20 per cent of its total expenditures on the same service.

It is absolutely impossible to estimate with accuracy the extent of mental illness and feebleminded-ness in Virginia; however, the National Mental Hospital Survey Committee in its survey recently made has estimated that there are approximately 1,455 persons now in their homes in the State of Virginia who need mental hospitalization. This approximation is based on the experience of other states. In addition to these figures, the alms houses and the city and district homes house about 1,600 inmates, a large per cent of whom (possibly fifty or seventy-five) may be considered as a part of the present and future mental problems of our State.

The report of the Virginia State Planning Board, recently exhibited, estimates that there are some 520,000 negroes in the State of Virginia; of that number some 14,250 are feebleminded. The present plan is to house in our institution for the colored feebleminded a maximum of 1,800 persons, which will be only about one-eighth of the estimated negro feebleminded population in this State. The State Planning Board estimates that there are 37,772 feebleminded white persons in Virginia. In order for them to deal as fairly with the whites as they are supposed to deal with the colored, the white colony for the feebleminded should have a patient capacity of 4,533 patients, excluding the epileptics. The population in September, 1938 in the Colony at Lynchburg, was 879 white feebleminded, which is about one in every fifty of the estimated while feebleminded in the State of Virginia; and the population as of the same date of epileptics at the Colony was 443. The Superintendent of the Colony recently stated "It can easily be seen that it would be out of the question for the State to consider caring for even as few as one in every eight of its feebleminded population." On February 28, 1938, there were 463 persons on the waiting list for entrance into the Colony for the Feebleminded at Lynchburg. Approximately 300 of these were considered to be of the idiot type. Provision has been made in the building program for the next biennium for approximately 300 additional patients in that Colony. What are we going to do with the remaining 163 patients, and for the normal increase for that long period? The present capacity of the proposed Colony near Petersburg will provide only three hundred beds. There are already 393 feebleminded and 210 epileptic patients in the Central State Hospital. How are we going to provide for these and for the normal increase for the next two years? The approximate number now awaiting entrance into the colored institution is not known, but it may be safely assumed that the opening of the new hospital will give impetus to the movement of patients towards that hospital. It has been indicated that the feebleminded hospitals are overcrowded, and have a large and ever increasing waiting list, but these conditions also exist in the mental hospitals, but to a considerably less extent.

For many years, in Virginia, the problem of administration of the State hospitals was dependent upon the Board of *each* institution, together with the superintendent who had full authority. Later, members of the Special Boards of each of the hospitals were formed to constitute a General Hospital Board, which would meet several times a year to formulate policies for the hospital system as a whole. It has been said that the old General Hospital Board was dominated by a group who took the responsibility of handling public funds so conscientiously that it came to be believed that the most important thing was to limit and decrease the amount of money they spent. Formerly, the efficiency of the State hospital superintendents was frequently rated on how cheaply, not necessarily how well, they took care of their patients. In 1937 the Legislature during its special session, enacted a statute which abolished the various special boards of each hospital and the General Board which has been referred to. It created a board of seven men, whose duty it was to administer all of the hospitals as a unit. Formerly, the State hospitals had been a nominal part of the Department of Public Welfare, but this new statute divorced the hospitals from that department, and practically created a new department of the State government to be known as the State Hospital Board.

The Legislature of 1938 also passed legislation in reference to mental health in Virginia, which next to the creation of the State Hospital Board to govern the hospitals as a unit, will probably do more for the improvement of the mental health situations in Virginia than any other one thing that has ever been done in the psychiatric history of this State. It created a Director of State Hospitals, whose duty it

is to supervise, direct and control the various institutions in the State hospital system. He is responsible solely to the State Hospital Board. Virginia was fortunate in having a nationally known man among us, who was perfectly competent to fill this position, and it was, therefore, unnecessary that we go outside of our State to obtain a qualified person. His office, together with the Executive Secretary and statistical and clerical help, is located in the Clinic Building of the Medical College of Virginia in Richmond. This same legislature created a central office for the administration of the State hospital system.

One of the greatest problems challenging the psychiatric ingenuity of the medical profession of this State and the State Hospital Board is the care of alcoholics and drug addicts. A prominent member of the recent State Legislature agitated the creation of a separate institution for alcoholics and drug addicts. This measure failed of passage in the 1937 and the 1938 meetings of the Legislature. There is a considerable divergence of opinion among psychiatric hospital administrators and others who have made a study of the subject as to whether or not alcoholics and drug addicts should be segregated in institutions away from the so-called mental patients. I am unwilling to be dogmatic about it, but it is my belief that these patients can and should be handled in the various State hospitals in Virginia, provided they are segregated from other patients, as the various types of mental diseases are segregated. Certainly, the problem at present is not adequately handled, and I fear that what we are doing for the most part is sobering them up or taking them away from drugs, and turning them back into the community, inviting them to return when they take one drink or when one dose of medicine is taken. The problem is one which seems to me to go deeper than that. These individuals are mentally sick, and for that reason they become addicted to drugs or to the over-indulgence in the use of alcohol as an escape from the problems that confront them in daily life. This view is generally accepted by psychiatrists, although there are some who still feel that this is the wrong approach to the subject. Prolonged hospitalization and proper psychotherapeutic guidance will rehabilitate many of these people.

There is the question of segregating the epileptic from the feebleminded individuals. This would certainly be an ideal situation, but funds are not at this time available for this to be even considered in Virginia.

Some students of the subject have agitated the question of removing the Department of Criminal Insane to the State Penitentiary, where they contend it rightfully belongs. From my point of view, there is no objection to placing a criminal who has developed insanity after conviction in a mental hospital within the confines of the State Penitentiary walls, but it is not fair, to my mind, to put an individual who commits a felony while insane in a penal institution. This latter group are not criminals, but are simply insane individuals who have committed criminal acts.

One of our outstanding needs for the next ten years is adequate building facilities to house our expected increase in patient population. Of equal or greater importance is the material strengthening of the whole personnel at the various hospitals.

The American Psychiatric Association recommends a physician for every one hundred and fifty patients in a mental institution. Another recommendation is that there be one physician for every forty admissions to a mental hospital. In Virginia our patient load at the various hospitals is as follows:

Eastern State Hospital—one physician to every 540 patients
Western State Hospital—one physician to every 582 patients
Central State Hospital—one physician to every 704 patients
Southwestern State Hospital—one physician to every 407 patients
Colony for the Feebleminded and Epileptics—one physician to every 440 patients.

It must be seen from these figures that these physicians could not possibly give new patients adequate time, study and intensive psychotherapy, or other recognized prescribed procedures which might be of benefit and hurry their discharge from the hospital. It is my belief, and I have little fear of contradiction, that if our State hospitals were manned with a sufficient number of qualified psychiatrists we could discharge a much larger proportion of our admissions and in time reduce the increasing population in our institutions.

The American Psychiatric Association recommends one ward employee to every eight patients. In Virginia our load is approximately one to seventeen.

New construction in the whole State hospital system has been authorized for the next biennium, which will provide for between 900 and 1000 additional patients, which will take care of the normal increase

for this period. The increase, however, may be a little above normal, because of the large waiting list for the white colony at Lynchburg, and the opening of the colored colony at Petersburg.

There is too little neuropathological work done in the hospitals. The number of autopsies is entirely too small. This is a valuable source of material for the training of residents and students, as well as improving our knowledge in this important subject. Already, one of the State hospitals has shown a considerable amount of interest in this work and they are having their specimens studied in the neuropathologic service of one of the medical schools.

All well regulated mental hospitals should have a psychiatric social service department. It is, therefore, the desire of the Director to provide this service in each of the various State hospitals. The plan is to appoint one well qualified person to direct this service.

The training of nurses and attendants in the care of psychiatric cases must be improved, and it is the intention of the Director of State Hospitals to have a head of this department, who will coordinate the work in the various hospitals and standardize the teaching and training of nurses and attendants. In reference to the training of psychiatric nurses, the State hospitals can be and are willing to be of service to the public and private hospitals in the State which at this time do not have departments of psychiatry. It is their intention to offer affiliated courses in psychiatry in the various State hospitals which will be open to students and nurses in the non-psychiatric hospitals in the State.

It is unnecessary to stress the need of occupational, industrial, recreational, and hydrotherapy departments in all mental hospitals. There is a minimal amount of this type of treatment carried on in all of the hospitals, and the work will improve as funds and personnel are available for the guidance of this important form of therapy. Industrial therapy is practiced probably on a larger scale than any other in our State hospitals, and is of definite value.

The State Hospital Board is at present negotiating with the Department of Public Welfare for the transfer of the State Mental Hygiene Clinic from that department, making it a part of the State Hospital system. At present, there is an entirely inadequate appropriation for the proper conduct of this service. They are attempting to take care of cases referred by the Children's Bureau of the Department of Public Welfare, and of all delinquent children committed to the Department of Public Welfare by the courts, as well as certain problem children and young adults from all over the State. This Clinic can broaden its scope materially under the proper medical supervision and in cooperation and co-ordination with the staffs of the various State hospitals. It would be able to visit communities throughout the State, and thoroughly study situations from a psychiatric standpoint. Valuable service can be given this clinic through local social workers, county nurses and others; so that with the aid of this service, many major psychiatric problems can be avoided, a criminal life may be aborted, and individuals may be kept out of either a mental institution or a prison. This can be a real beginning in mental hygiene.

A traveling clinic, either psychiatric or otherwise, operated by a State bureau, should be careful to avoid the pitfall of competition with private physicians. The unwholesome situation in which the State of Virginia is in competition with private mental hospitals exists today at one of our State owned institutions.

I think I can assure you that the present State Hospital Board has no intention of entering into competition with private medicine, either from an institutional or from a private practice standpoint. The situation existing at present, which allows an individual of comfortable means who is able to pay for private care, being placed in and treated in our State hospitals without pay, is certainly not fair to private mental institutions which pay taxes. On the other hand, the individual of marginal income or those in the medium income bracket should be allowed to go to a State mental hospital, and after a thorough and satisfactory social service investigation of the family's ability to pay for the care of this individual, they should be charged a moderate sum, the income from which would entirely or partially pay for the care of the patient, and would certainly lessen the burden on the State. This method is being practiced in some states to advantage.

The medical personnel in the state hospitals has been encouraged to take post-graduate courses elsewhere, so that the younger men in the service will be sufficiently and adequately equipped by training to accept promotions in our institutions when vacancies in the higher grades occur. We hope that the training in our own state hospitals will be sufficiently recognized so as to attract more men who desire train-

ing in psychiatry, and in time, we hope that doctors trained in our institutions will be sought for positions elsewhere. It is the desire of the State Hospital Board to import men only when qualified men in our own service are not available for such promotions.

A review of the problem in caring for the mentally sick in our State unquestionably leads us to realize and appreciate the fact that much progress has already been made, particularly in the last few years, toward the improvement of our entire system in Virginia, but we must admit that there is much need for further improvement.

If the present suggestions, plans and proposals made by the Director of State Hospitals and the State Hospital Board can be carried out, there being sufficient funds and personnel available, the people of the State of Virginia will have a state hospital system of which they can be justly proud. In my opinion, the care of the mentally sick in Virginia is *the* major social problem of our modern times.

Professional Building.

DISCUSSION

DR. HUGH C. HENRY, Richmond: In his paper Dr. Gayle has given you statistics which reveal something of the extent of mental illness and defectiveness in the United States and in our own State and the cost of it in money. He did not tell you its cost socially and economically which is far greater. It is interesting to compare the per capita costs of the care of mental patients in the United States and the several states with the per capita allowed for their care in Virginia. The statistics and figures which he has given you are taken from authoritative sources and may be relied upon. I hope when Dr. Gayle's paper is published that you will preserve it for reference and reflect upon it from time to time, because it will be good for your soul to "know the truth." The extent of the bondage in which so many of our fellow citizens are held may not be pleasant reading, but I believe if Dr. Gayle had done no more than expose a body of representative, intelligent and public spirited doctors to the truth, that he has done well.

Dr. Gayle has referred to the long and honorable record which Virginia has in the matter of caring for its mentally sick. I desire to add my testimony and pay tribute to the worth of those who have labored through the heat of the day in caring for our mentally sick and to say that because they were compelled to make brick without straw, it was not of their choosing, and, in spite of all, they did make some pretty good brick at that. But he has told you of legislative action which promises better conditions and more support in obtaining the necessary tools and machinery for doing a better job.

With reference to the problem of caring for and treating alcoholics and drug addicts and whether they should be treated in special institutions or in our State hospitals, it seems to me relatively unimportant provided adequate medical care is given, which means among other things that a proper study is made of the *individual* to determine, if possible, the *cause* of the addiction. Is the patient mentally sick because of the effects of alcohol, or has he a mental illness which caused him to turn to alcohol as an escape? Our knowledge of the subject from a scientific viewpoint is far from satisfactory, and it seems to me we have here a research problem worthy of determined and continued effort.

I am sure there was never any sound reason for mixing the epileptic and feebleminded except an economic one. I have long advocated taking the feebleminded, particularly feebleminded children, out of our State hospitals, and think reasons could be advanced for separation of the feebleminded from the epileptics nearly, if not equally, as good.

In my opinion there should be within the penitentiary a psychopathic department for the care of its insane inmates. It is hardly fair to mix the unfortunate individual who commits a criminal act while mentally ill with those who are properly felons and who later become insane. The patient who is sent to the hospital by the courts for observation pending trial is certainly not (not yet, at least) a criminal, and he may even be innocent of any offense. I have seen many evils resulting from this unsatisfactory, and I think unjust, admixing of the two classes, which would be cured by the establishment of a psychopathic department within the walls of the State prison. Excellent psychiatric consultants are available in Richmond, and the proximity of the Medical College makes the location ideal, both from a therapeutic and teaching standpoint.

The numerical inadequacy of the medical and nursing personnel in the Virginia State Hospitals is perhaps our outstanding deficiency. So great is the deficiency that not even the National Committee for Mental Hygiene recommended in its recent survey, its corrections immediately, but as a gradual process extending over several years, in order that the additional doctors and nurses could be assimilated properly. Adequate medical and nursing personnel would automatically correct Dr. Gayle's complaint as to neuropathological work.

The development of a psychiatric social service, a training school for nurses and attendants, as well as occupational therapy have been given much thought in recent months, and a creditable beginning has been made in at least two of our State hospitals, with the hope of extending the work to the others as means are available.

The *prevention* of mental disease is our only hope for a satisfactory solution of the problem which faces us. If our plans for the development and extension of the State Mental Hygiene Clinic materialize, we will have made a start in the right direction, but in this work the sympathetic cooperation of the doctors of the State will be essential. I am glad that Dr. Gayle in the beginning of his paper stressed the wholesomeness of the general interest which is being taken in mental hygiene problems and gave credit particularly to those editorial writers of our daily newspapers who have written intelligently and

constructively on the subject. These gentlemen, as well as the editors of our medical journals, have been and are rendering a very real service; for without the proper kind of publicity and education, the cooperation of those who make the laws, those who vote for them and those who most need what mental hygiene has to offer cannot be secured.

But his message today is to doctors, and I especially commend to you his excellent paper. I only wish you could have heard, also, one I had the pleasure of hearing him read last week before the Medical Association of the Valley of Virginia. I say this because we who are trying to improve the system of care in the State hospitals and to institute an adequate prevention program need you. The assistance of the laymen referred to is splendid, but our problem is a medical one, and we have a right to expect that those medical men who have in the past, by their interest and cooperation, made possible the achievements of the State Department of Health shall also take equal interest in this great public health problem, which Dr. Gayle characterizes as the major social problem of modern times.

DR. DAVID C. WILSON, University: Dr. Gayle's paper presents the problem of the mentally sick in excellent fashion. He also includes some constructive suggestions and criticisms of the present care of patients in Virginia and I would like to re-emphasize as well as to criticize some of these that seem pertinent.

First he brings out the small relative cost of the care for a patient in a State Hospital in Virginia showing very definitely that our neighboring States of Maryland and South Carolina spend practically $100 more per year per patient than we do. In comparison between Virginia and Massachusetts it is especially striking, the expenditure at our State Hospitals being 2.3 per cent while that of Massachusetts is from 15 to 20 per cent. Certainly it is time for Virginia to spend more for the mentally sick.

In consideration of the feebleminded problem, he does not give any answer to the fact that 4,500 white feebleminded persons should be institutionalized in this State. Certainly these cannot go to the Colony at Lynchburg and it seems to me that some other plan for their care must be formulated.

I also would like to ask if the proposed Colony for Negroes at Petersburg is supposed to take care of the epileptic as well as the feebleminded and to urge that these two conditions be separated and handled in different institutions. It is my opinion that we have an opportunity to develop a splendid institution for the colored feebleminded but, if the epileptics are also included, then our work will be greatly handicapped.

Let me call attention also to his suggestion that the alcoholics should be handled in a separate institution. Undoubtedly most alcoholics and drug addicts are mentally sick individuals but the care of the great majority of them is distinctly different from that of a patient with a severe mental illness. Under present conditions no great effort can be made for their cure. The psychiatric approach is the only one which offers any hope but this demands close personal attention by skilled individuals. What is necessary, therefore, is not so much a new building or new institution as a numerous staff trained in the care of this type of individual.

Finally Dr. Gayle is to be congratulated on his paper but especially on the great work of the Hospital Board of which he is such an important part. They have gone ahead with great courage and wisdom and have put new life into us all, bringing great joy over the things they have accomplished and high hopes for the future.

THE SYPHILIS PROBLEM IN ROANOKE.*

W. W. S. BUTLER, M.D.,
Roanoke, Virginia.

My internship in Philadelphia was from 1909 to 1911. During this time the first doses of "606" were given in this country in New York and in Philadelphia. It was called the "Therapie Sterilizans Magna". It was Magna all right from the reaction of the initial patients but unfortunately did not turn out to be Sterilizans. About this time the darkfield and Wassermann reaction were coming into use. In the following twenty-five years, our knowledge on this subject has come up to the present high standard based on statistics from 76,000 cases, gathered by the Cooperative Clinical Group, with each case followed for a period of more than five years and studied by the experts of our country. These tables have the accuracy of life insurance statistics and will be freely quoted in the subsequent pages. These are not abstract figures to me; they are real persons since it has been my misfortune to see men go from the insignificant "hair-cut" through a period of inadequate treatment to the horrors of aortitis and of locomotor ataxia.

It is our plan in this discussion to take the number of cases expected annually in Roanoke and compare them with the number which we actually find. The number expected is based on a population of 100,000 in Roanoke and Roanoke County, and, tak-

*Presidential address, Roanoke Academy of Medicine, October 3, 1938.
From the Jefferson Urological Clinic.

ing the figures from the survey in Chicago by Dr. Vonderlehr *et*[1] *al.* last year which gave forty-four per 10,000, we can expect next year 440 new cases of syphilis in our city. In the Chicago survey, covering a period of six months, 99.6 per cent of the physicians cooperated and all available sources of information were gone over, sparing no expense. If the same proportions prevail here as in Chicago, 365 of our 440 new cases will be latent syphilis, and seventy-five will be in the early contagious but curable stages.

We have three methods of making our own estimates. First is by the number of blood tests sent from this community to Richmond. Of 6,156 blood tests from Roanoke city and county, 804 were positive, one-sixth of this number being from the county. To give us this information, the State Health Department went over 103,000 records sent in last year. As nearly as they can ascertain, this represents 600 new cases though they are not divided into early and late. Another method of estimating this would be an actual count of the patients whom we have seen; by this method there have been 260 new cases to report for treatment at our public clinic, plus seventy-three treated by ourselves. This does not include the remaining patients treated by more than 110 physicians which would far exceed the balance needed to make up 440. A third method would be to estimate the number from the percentage found in a group where the Wassermann has been taken. By this method where a routine Wassermann was taken, in 3,020 food handlers, 200 positive Wassermanns were found, which is a percentage of six and seven-tenths. This group represents in the main young adults. In hospital groups composed of the private room classes, we have, over a period of years, a 2.5 per cent average of positive Wassermanns. In our colored hospital last year, of 388 routine Wassermanns taken on admission, fifty-nine, or 15 per cent, were positive. With the above figures before us, it can be stated definitely that 440 per year is a conservative estimate of the number of our cases.

In my twenty-six years' association with you here, I certainly feel that I am one of you and am taking the liberty to state current practices which have come under my observation. There are four points which I want to discuss as mistakes which are being made today and which have been made many times by me. First, our interpretations of the Wassermann test; second, our failure to anticipate nerve and heart complications; third, the little effort which is being made to find and follow up cases; and fourth, is our attitude toward the public.

I. The pamphlet on "The Management of Syphilis" presents clearly the interpretation of the Wassermann test. I recommend that it be read carefully. The false security of a negative blood Wassermann and at times the relative unimportance of a positive Wassermann must be understood. To emphasize the danger of inadequate treatment and the factors of resistance produced by nature and that produced by drugs, the following is quoted in substance:[2] In untreated early syphilis, no treatment gives 30 per cent cures as compared with 18 per cent if inadequately treated, and 83 per cent when adequately treated. When paresis or tabes occur in a treated case, the asymptomatic period averages five and ten years less respectively than in the untreated patient.

To interpret the Wassermann at different stages in the disease it will be necessary to take the six major divisions arranged according to the treatment point of view.

(a) First, we have the period of primary syphilis, an ulcer with a positive darkfield but a negative Wassermann. In the clinic, 2 per cent only of 260 new cases showed a positive darkfield compared with 11 per cent in those taken in the office. This merely means that the more intelligent group comes earlier for this examination. The darkfield, has however, this drawback, the lesion heals so promptly that it is difficult to persuade the patient of the importance of continuing his treatment and the subsequent checks to eliminate the danger of heart and nervous system involvement. A large proportion of neuro-syphilis can only be attributed to a minor sore and frequently to some urethral lesion obscured in a gonorrheal infection years before.

The primary sore was probably entirely overlooked. This mild onset fails to stimulate our natural resistance and leaves the body open to attack in the late degenerative stages of the disease.

(b) In about three weeks following the appearance of the chancre, the Wassermann becomes positive. If our patient does not arrive until this stage, he has lost 20 per cent of his chances of cure.

(c) This is the period when secondary throat and skin lesions appear. There is a slight increase in chances of cure due probably to the natural reaction of the body to disease at this period. At this time, too, we have our maximum period of danger from

the involvement of the nerve and cardiac systems. These are particularly likely to occur from rest periods in treatment. It is our impression that these rest periods are caused to a large extent by the system of charging so much per treatment rather than charging by the month or year, since the former has a tendency to make the patient economize by deciding himself the amount of treatment which he needs rather than leaving this to his physician.

The Wassermann is of its greatest value as a guide in the treatment of the disease during this stage of treatment. The slow gradual drop to negative and remaining so gives the best prognosis. If negative, the routine treatment may be followed out. If positive and remaining persistently positive, the significance is very great. In a series of several hundred[5] Wassermann fast cases, only 6 per cent failed to show lesions somewhere in the body; 48 per cent in the central nervous system, 36 per cent in the cardiovascular system, 32 per cent in the osseous system, with 11 per cent congenital. With these facts in mind, the positive Wassermann found in older people should not be dismissed after a few doses of potassium iodide. The essential thing here is not whether the blood Wassermann reaction continues positive, but what lesion causes it and whether this lesion is in the heart, nervous system or a less vulnerable location.

(d) In the absence of symptoms, we now have about two years of a monotonous treatment carried out according to schedule.

(e) Next is the critical period of two years, during which time we stop treatment, but check by a Wassermann every two months. Ninety-one per cent of infectious relapses will occur during this time. There is an 80 per cent chance of cure. If at the end of this time, an X-ray fails to show involvement of the aorta and a spinal fluid shows no involvement of the nervous system, it is highly improbable that these complications will ever occur.

(f) If your patient should not come to you until after this period, he has no chance of a complete cure. His symptomatic relapse will occur in an equal percentage of cases whether or not the Wassermann is positive. For this reason, the reading of the blood Wassermann is of no value as an index for treatment. Other than in the early late and early congenital, there is no chance of complete cure. Symptomatic cures are attainable in a large per cent with the exception of the advanced aortic lesions.

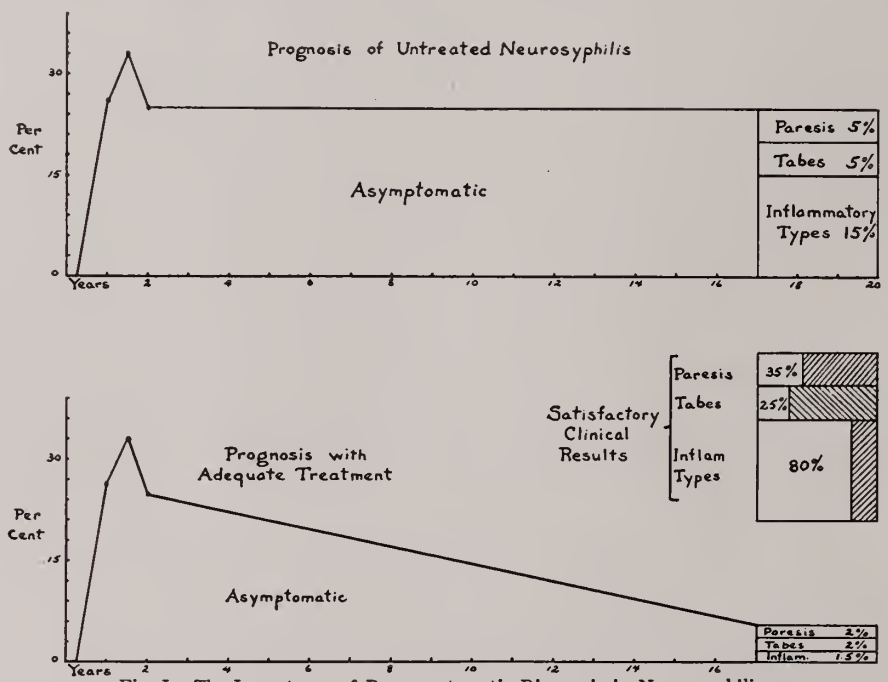

Fig. I.—The Importance of Pre-symptomatic Diagnosis in Neuro-syphilis.

II. The prevention of degenerative changes in the nerve, cardiovascular and congenital types is discussed in a most clear and tangible manner in Moore's "Modern Treatment of Syphilis". The value of pre-symptomatic diagnosis to reduce degenerative changes in the nervous system from the

expected twenty-five to 5 per cent is shown in the illustration.

Figure I shows the results to be expected under the usual treatments and those attained by adequate treatment of syphilis. To super-impose the lower curve on the upper would show the number of cases which can be arrested by early treatment. From 25 per cent of all syphilis which develops neuro-syphilis, this can be reduced to 5 per cent. The 25 per cent is divided into 15 per cent meningo-vascular, 5 per cent locomotor ataxia, and 5 per cent paralytic dementia.

To discuss briefly these terms, the normal course of neuro-syphilis is outlined:[3] Neuro-syphilis is a continuous process involving the nervous system, first as a period of invasion, then an inflammatory, and later as a degenerative process. The first two are far more amenable to treatment. The symptoms parallel the course of the disease; there is first the prodromal or asymptomatic period averaging nineteen years in the untreated, fifteen in the treated. Asymptomatic neuro-syphilis is present in 32 per cent of all syphilis at eighteen months. The next stage is the meningo-vascular, occurring in 15 per cent of all syphilis and characterized by symptoms varying from stiff neck and headache to convulsions and coma. Approximately 80 per cent of these respond to adequate treatment though, if untreated, 30 per cent progress to the degenerative stages. Approximately 5 per cent of all syphilis ends in locomotor ataxia; with adequate treatment, one-third of these may be arrested. Locomotor ataxia rarely causes death directly, though the invalidism due to blindness, gastric crises and ataxia are worse. Paresis, representing the remaining 5 per cent of all syphilis, means a dementia with paralysis and complete inbecility. An interpretation of the groups of spinal fluid and the significance of each is shown in Figure II. This combination table is a key to interpret the types of spinal fluid change. The proportion is indicated which will develop symptoms and the type of symptom they will develop also is shown. Not only this, but the relative chances of preventing them by adequate and by inadequate treatment respectively is shown.

On questioning the directors of the five laboratories here, including the City Health Department, there is no knowledge of more than six routine spinal fluid examinations having been made in the absence of symptoms. Many examinations have been made after symptoms have developed, i.e., after the damage has been done. This is not meant as a criticism; the patients have not been educated to it, and no one seems willing to try to put it over. To emphasize the importance of this examination my associate, Dr. L. C. Spengler, Jr., reports an examination of ninety spinal fluids which he has done, forty-six from the office and forty-four from the public clinic. This small number serves only as a "straw to show the way the wind blows". Five of these presented symptoms and are not included since the point we wish to emphasize is the value of these tests in the pre-symptomatic period. Of the forty-five patients with a persistent positive Wassermann,

ASYMPTOMATIC NEUROSYPHILIS

Group	Spinal fluid abnormalities	Per cent developing symptoms	Per cent			
				Clinical cure	Degen-erative	Meningo-vasc.
I	Increased cell count and/or globulin WaR negative Colloidal curve normal	6				
II	Cells may or may not be increased Globulin positive WaR negative and colloidal curve positive or WaR positive with or without a positive colloidal curve	32	Adequate Treatment	95	1.5	4
			Inadequate Treatment	18	7.5	75
III	Cells usually increased Globulin positive WaR positive in all dilutions Colloidal curve paretic	73	Adequate Treatment	70	20	7.5
			Inadequate Treatment	7.5	75	15
Normal	Cell count less than 6 Globulin negative WaR negative Colloidal curve normal	3.6				

Fig. II.—Interpretation of Spinal Fluid Findings[4] In Asymptomatic Neurosyphilis.

62.2 per cent (city 66.7 per cent; office 55.6 per cent) show changes in the spinal fluid and 37.8 per cent (city 44.4 per cent; office 27.8 per cent) showed a positive spinal fluid Wassermann. The high percentage of asymptomatic neuro-syphilis in the persistent Wassermann fast cases shows the importance of this manifestation.

Of the forty whose blood tests had become negative 17.5 per cent (city 24 per cent; office 13.1 per cent) showed minimal spinal fluid changes and none showed more advanced changes.

III. By applying these figures to the key shown as Table II, we can estimate their prospects of future health by current methods and by adequate treatment respectively. In the 1,200 at the public clinic and the far larger number in the city, the proportions will not vary materially.

The right hand side of the table interprets the chances of nerve involvement in those with a persistently positive blood Wassermann as compared with those with a negative blood Wassermann. In the normal spinal fluid column, one-third have positive blood Wassermanns; group I spinal fluid tests shows two-thirds Wassermann fast, group II shows nine-tenths Wassermann fast, and group III shows one hundred per cent Wassermann fast. The opposite is not true, however; a negative blood does not necessarily mean a negative group III spinal fluid. There are two cases of symptomatic neuro-syphilis with positive spinal Wassermanns and negative blood Wassermann tests in this series of ninety examinations.

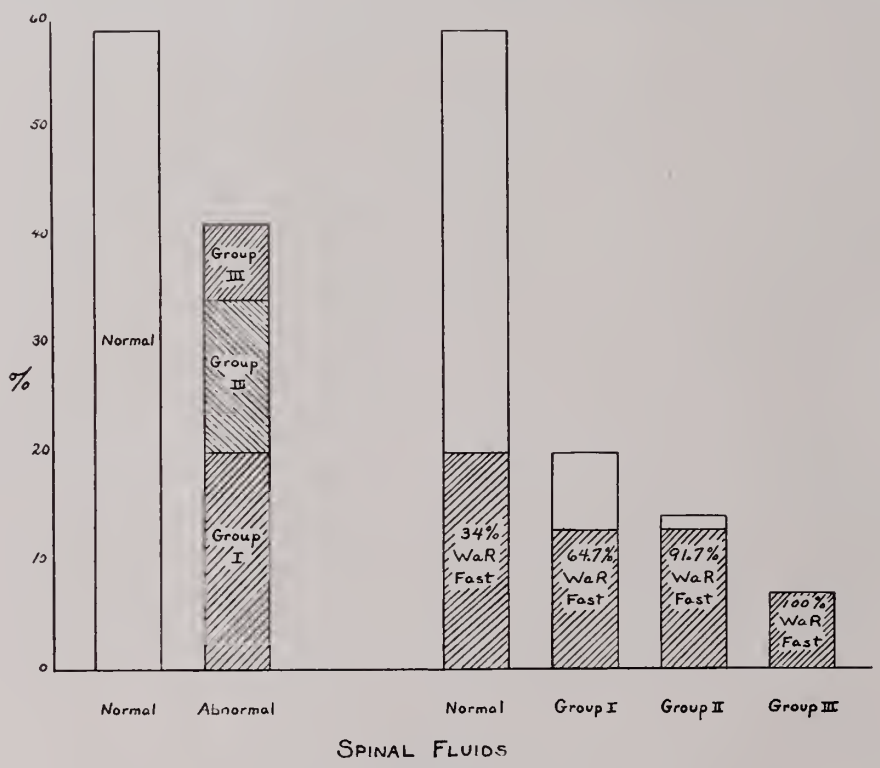

Fig. III.—Routine Spinal Fluid Examinations.

Columns 1 and 2 show the percentage of each group found in 90 cases. Columns 4 to 6 show the percentage of fixed positive blood Wassermanns in each group of spinal fluid.

We find then, 41 per cent (city 50 per cent; office 37.2 per cent) asymptomatic neuro-syphilis in our total cases at the stage at which they usually stop treatment. Apply this percentage to the 1,200 treated in our public clinic last year, and we have 494 neuro-syphilis cases unrecognized. This is not meant as a criticism. One man in a few hours per week cannot adequately treat 1,200 syphilitic patients a year.

Figure III shows 59 per cent normal spinal fluids to 41 per cent abnormal spinal fluids in patients presenting no symptoms. Of the latter, 20 per cent are group I, 14 per cent group II and 7 per cent group

The modern treatment of syphilis does not stop entirely with the prevention of late neuro-syphilis. Remarkable results have been attained even after

degenerative symptoms have appeared. Moore states that in paresis, patients receiving no treatment will have complete remissions in 4 per cent, and 80 per cent will die in four years from the onset. Of those receiving the routine drug treatment there are the same proportion of complete remissions but 65 per cent deaths in four years. With the modern fever therapy plus drug treatment, 35 per cent have complete remissions and only 7 per cent die in four years.[7] Almost as good results are being reported in primary optic atrophy.[5]

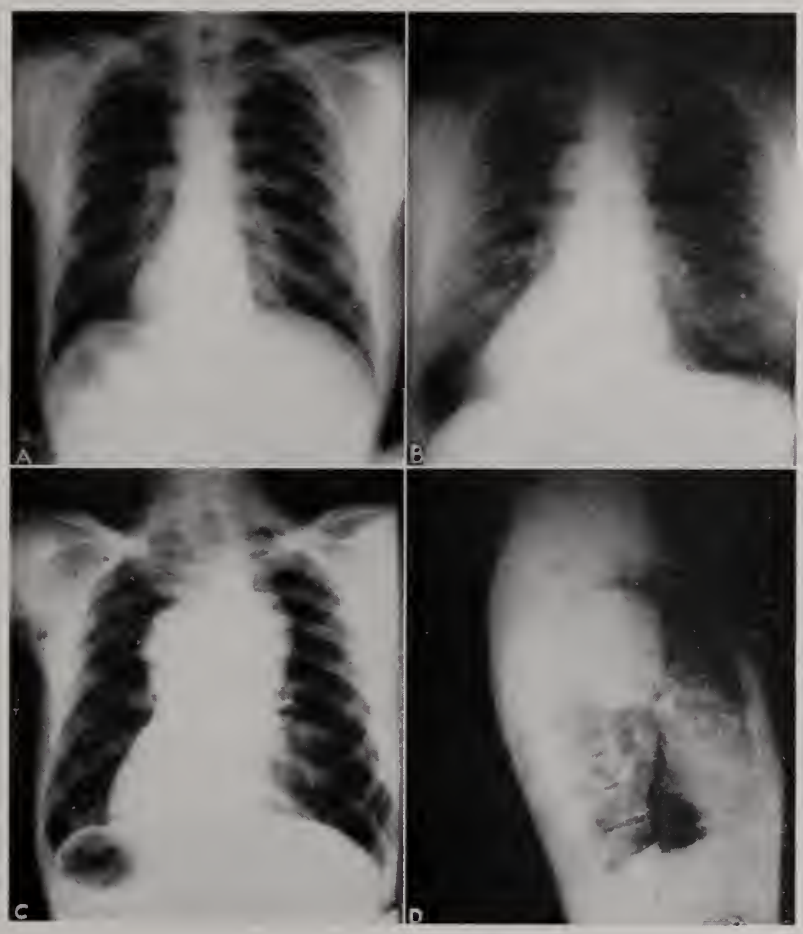

Fig. IV. a. Normal heart and aorta. b. Syphilitic heart with aortitis. c. and d. Antero-posterior and lateral view of aortic aneurysm.

Cardio-vascular syphilis unfortunately does not present a label so easily read as the spinal fluid in neuro-syphilis. Three significant observations are quoted:[6]

(a) Of 6,000 late cases, 10 per cent showed clinical evidence of this complication.

(b) In a large autopsy series both in Berlin and Ann Arbor, of those with late syphilis, 80 per cent showed aortitis.

These two observations, in which only 10 per cent out of 80 per cent were recognized, show the difficulty of its early recognition.

(c) Of 1,936 late cases who had received routine treatment early and were followed by the Cooperative Clinical Group, only thirty-one developed cardio-vascular disease.

This finding, corroborated by a number of observers, demonstrates that no cardio-vascular syphilis develops in a patient receiving adequate early treatment. A fixed Wassermann reaction is present in 50 per cent of cardio-vascular disease.

Dr. D. C. Smith, at the University of Virginia, is now having routine X-ray examinations of the heart made in all of his cases and his findings will be most interesting. We have been able to obtain X-ray pic-

tures in only nine of our late syphilis cases. One of these who had a Wassermann fast blood showed an aortitis. Two others presented symptoms but are shown in Figure IV as illustrative of what may be expected.

Space does not permit a discussion of prenatal and congenital syphilis. The substance is that if a Wassermann is taken and treatment begun in the first half of pregnancy, there would be no congenital syphilis. We feel that if a child is born with congenital syphilis and the physician has failed to make a Wassermann on the pregnant mother he should be liable to a suit for negligence. We call attention to a Bill signed March 18, 1938, by Governor Lehman of New York, requiring every pregnant woman to have a standard serologic test for syphilis. The birth certificate must carry a statement that such a test has been made, or, if it has not been made, the reason for such failure to make it must be given. The results of the test are not recorded on the certificate, however. It is estimated that in this one State, 13,000 babies will be saved from death or disease every year. There are 4,000 children born with syphilis in New York State every year and 18,000 still-births. It is believed that half of the still-born infants could be saved and all of the 4,000 syphilitic infections could be prevented if a diagnosis were made early in the mothers and they were given adequate treatment. Roanoke had forty-nine still-births and twenty congenital cases in 1937. The congenital cases were included among the two hundred and sixty reported at the public clinic in 1937.

III. (a) We come to our third heading of "case finding and follow-ups". For finding sources of infection in the early cases, the physician has the inside track. A trained social worker, however, will have to seek out the contacts. They may run from two or three to a dozen or more from a single case. If these are sought out we would not have the small proportion of only 2 per cent positive darkfields in the early cases. A chart should be kept showing the source of each infection as in any other epidemic disease, and should be worked out by a person with plenty of time and enthusiasm, and cannot even be attempted as a side-line. We have here a minimum of 440 new cases per year of which 75 are recent acute infections and, to get our total number of cases, this should be multiplied by not less than ten. No adequate data are available on this point. We feel that in a disease this extensive, we should have a full-time man to conduct the clinic and this follow-up work. If it is not practical at present, it seems the State may furnish us a man for a year or more to educate both the physicians and the public in this important but neglected angle of our work.

(b) Our next method of case finding is the location of the late cases. A routine Wassermann on all new members, at every establishment, would gradually accomplish this. Our Health Department found, on making a routine examination on 3,020 food handlers, that 200 showed a positive Wassermann, that is 6.5 per cent in this adult industrial group. We have in our city, the following industrial plants employing 17,248 men. We hope to secure routine Wassermann tests on all of their employees along with the routine physical examinations.

There were in our city during 1937 at:

The Viscose	4,700
N. & W.	6,513
Va. Bridge	890
Johnson-Carper	430
Roanoke Weaving	356
Roanoke Mills, Inc.	272
Food Handlers Group	3,120
Units employing 100-200	1,000

(These are Harris Hardwood, Walker Foundry, Leas & McVitty, Comas Cig. Mfg. Co., Neuhoff, Stone Printing Co., and the *Times-World*.)

Of this 17,248 wage earners, we expect 6.5 per cent positive Wassermanns or approximately 1,131 positive Wassermanns to be found. This assumes that the percentage is the same among all groups. We believe 1,000 would be a conservative estimate.

Of this 1,000 persons with syphilis, 25 per cent or 250 will eventually develop neuro-syphilis. This 250, by adequate treatment, could be reduced to fifty. Adequate treatment includes a spinal fluid test to see which ones now have asymptomatic neuro-syphilis.

To present actual numbers seems a bit fantastic. These results or better will come in our day. Something will be accomplished gradually by its educational value which will lead to a far higher standard of treatment in the earlier cases.

IV. In regard to our fourth heading of the "Attitude of the Physician" which is really the source of information to the public, we feel that an informed public is an essential for two reasons: first, to secure necessary funds to treat the large number of indigents affected by this condition, and, second, to secure the cooperation of our own patients in carrying out their treatments. To secure and deserve the confidence of the public, we should have an approximately uni-

form method of treatment, and for this, the recent pamphlet on "Management of Syphilis", sent us by the State Health Department, should be a basis. This book represents the latest and most accurate information compiled by the United States Public Health Service for our use. It contains all necessary information for the treatment of early syphilis.

I feel that it is our responsibility to cooperate in every way with the Public Health Service and not, by a few words of disparagement, to counteract their work in sources where we may have a great deal of influence. Our tendency is to under-estimate our own importance in the education of the public in matters of this type.

We are grateful to the Roanoke Health Department and to the public clinic for their help to us in securing information as to the number of cases and supplying the forty-four cases necessary for spinal fluid tests in the clinic. We also appreciate the cooperation of the State Health Department which went over 103,000 Wassermann reports done in 1937 to give us the necessary 6,000 which came from Roanoke and Roanoke County; also to my associate, Dr. L. C. Spengler, Jr., who has aided me in compiling this information, in preparing the slides, and who has done and examined the ninety spinal fluids.

To make a résumé of the above statements, syphilis should be treated by schedule with a laboratory control through blood and spinal fluid tests. Complications must be arrested or prevented by early recognition. Our offices and clinics should not be "Arsphenamine filling stations" at so much per shot. To treat all alike is to overlook the 20 per cent which may be saved by adequate treatment. This does not include the heart and congenital cases to be eliminated by adequate, early treatment and an efficient case finding organization.

The key to success is an interested and informed medical group with the cooperation of trained social workers.

The United States Public Health Service has arranged points at which intensive courses in training in syphilis treatment and prevention are taught. Dr. T. B. Turner, of Johns Hopkins, states that from six months to one year is essential for this training. It is apparently not practical to have a full-time man here trained in this manner at present. We feel that if the State should furnish such a man for a year, with some additions to our present organization, this work could be carried on.

We feel that the 1,200 cases under treatment in our public clinic in 1937 are entirely too much for one man to handle in a few hours each week. To render them non-contagious is not enough. To give them individual diagnosis and proper treatment requires the work of a full-time trained man. The further heat therapy which will be necessary in many of the advanced nerve cases could be handled by an arrangement with the University of Virginia or our State asylums. It should not be necessary that these should be advanced cases; it should be available to the early cases when a diagnosis has been made.

To those of us satisfied with our present status, we suggest a visit to the Veterans Facility here, which has 140 out of 670 inmates of this institution there as a result of this disease. We also call attention to the annual attack rate per 100,000 in 1935 as compared with other countries, which shows the following:

United States	796 cases
Great Britain	47 cases
Denmark	20 cases
Sweden	7 cases

References

1. *J. A. M. A.*, May 19, 1938, "Prevalence of Syphilis in Chicago."
2. "The Modern Treatment of Syphilis," by Dr. J. E. Moore, p. 28.
3. Mayo Clinic Bulletin, November 10, 1937, O'Leary, "Neurosyphilis."
4. Dr. J. E. Moore, pp. 219, 225, 339.
5. Dr. J. E. Moore, p. 425.
6. Dr. J. E. Moore, pp. 278-283.
7. Dr. J. E. Moore, p. 340.

Medical Arts Building.

Discussion

DR. OTIS L. ANDERSON, Director, Division of Venereal Disease Control, Virginia State Department of Health: I have thoroughly enjoyed Dr. Butler's paper and wish to compliment him on a very excellent and comprehensive presentation.

The expectancy of 440 new cases of syphilis in Roanoke City and County next year, as stated by Dr. Butler, I believe is definitely conservative. A further consideration of the material presented by Vonderlehr *et al.* in the Chicago study reveals a somewhat higher prevalence rate when the distribution of white and colored population is evaluated.

The Chicago study included a population group in which only 7 per cent were colored. Therefore, in computing the prevalence of syphilis is a southern city and county with a colored population of about 15 per cent, this racial distribution of the disease will have to be com-

puted separately to arrive at the true expectancy. The small group of 7 per cent colored in the Chicago study was found to have a rate eight and one-half times greater than the white race. If we apply the color specific rates of the Chicago study (white 28 per 10,000 and Negro 237 per 10,000) to the white and colored population of Roanoke City and County we would obtain 642 cases as the total expectancy for the year, divided into 256 white and 386 colored.

A recent survey of a representative city in Virginia revealed an annual rate of 59 new cases of syphilis per 10,000 white population and 287 new cases per 10,000 colored population. Applying these rates to the two races in Roanoke City and County, a total expectancy of 1,007 new cases of syphilis would occur next year. These are divided into 539 white and 468 colored.

The emphasis on the prevention and management of neurosyphilis and cardiovascular syphilis is indeed timely. According to studies made by the Cooperative Clinical Group, the approximate chance of development of late syphilis when early syphilis is untreated is: cardiovascular 45 per cent and neurosyphilis 25 per cent. If treatment is administered early and adequately, the chance of developing cardiovascular syphilis is reduced to 4 per cent and neurosyphilis to 6 per cent.

I agree whole-heartedly with Dr. Butler in the statement that too few spinal punctures are made. It should be a routine procedure before beginning treatment in a case of latent or late syphilis, as well as at the time of discharge when treatment has been completed. A persistently positive serologic test in early syphilis, after six months of continuous therapy, is strong presumptive evidence of neurological involvement and is an indication for spinal fluid study. If spinal fluids were studied in the above manner, many cases of asymptomatic neurosyphilis would be found in time to avoid the late crippling manifestations of tabes, paresis, etc., and in those whose fluid shows more extensive invasion, progression may be arrested in time to prevent, or at least ameliorate, the late manifestations of the disease.

THE TREATMENT OF BENIGN RECTAL STRICTURE (LYMPHOGRANULOMA VENEREUM).*

HARRY J. WARTHEN, M.D.,
Richmond, Virginia.

Many articles have appeared in the medical literature during the past decade on the subject of lymphogranuloma venereum and its relationship to benign rectal strictures. Prior to the introduction of Frei's[1] intracutaneous test in 1925, non-malignant and non-traumatic strictures of the rectum were thought to be due to syphilis, tuberculosis or gonorrhea. This explanation was accepted not because these diseases could often be demonstrated but because rectal stricture occurred most frequently in colored women and their vulnerability to these conditions was traditional. Every dispensary in the South had its quota of unfortunates who returned at irregular intervals for rectal dilatation.

TERMINOLOGY

The introduction of the Frei test showed that the large majority of these strictures were caused by lymphogranuloma venereum. This condition, when applied to both sexes, has been variously called lymphogranulomatosis inguinalis, subacute adenitis with purulent intraganglion, non-tuberculous granulomatous lymphadenitis, hypertrophic bubo, tropical bubo, strumous bubo, climatic bubo, pestis ambulans, Nicolas-Favres disease, fourth venereal disease and sixth venereal disease.[2]

INCIDENCE

This condition was formerly thought to be a tropical and semi-tropical disease but in recent years cases have been reported from all parts of the world. Males appear to be affected slightly more often than females. This difference may be more apparent than real due to the superficial lymph drainage of the initial lesion in the male.

PATHOLOGY

Lymphogranuloma venereum is caused by an ultramicroscopic virus which is transmitted during coitus. After an incubation period of one week a transient, painless ulceration appears on the genitals. Several weeks later the lymph nodes draining the initial lesion become edematous and the lymphoid tissue undergoes hyperplasia with fibrosis and abscess formation. The lymph nodes involved necessarily vary with the sex of the patient and the location of the primary lesion.

Lee and Staley,[3] in their well illustrated article, briefly review the lymphatic drainage of the external genitals, as follows:

*Read before the sixty-ninth annual session of the Medical Society of Virginia, at Danville, October 4-6, 1938.

†From the Department of Surgery, Medical College of Virginia, Richmond, Va.

(In the male)—"The glans penis and prepuce drain primarily to the inguinal lymph nodes. These have connection with the iliac nodes above. An occasional lymph-vessel leads directly through the femoral canal and abdominal muscles from the glans penis and prepuce to the iliac and hypogastric lymph nodes. A number of anastomoses are present between the lymph vessels of the glans penis and prepuce and the skin of the scrotum and there is a rare direct connection with the anal region. The skin of the scrotum drains chiefly to the inguinal nodes. The abundant connections of the skin of the scrotum with the anal region are of great importance as this connects indirectly the penis and the cutaneous lymphatic network of the anus."

(In the female)—"The clitoris and vulva drain principally to the inguinal nodes. As in the male, direct trunks lead to the iliac and hypogastric nodes. The lymphatics of the posterior portion of the vulva have extensive connections with the cutaneous lymphatic network of the anus. In both sexes many communications exist between this anal network of lymphatics and Gerota's nodes at the ano-rectal junction. The cutaneous and lymphatic network is approximately two centimeters within the anal orifice and Gerota's nodes are four centimeters higher. The connections between the lymphatic vessels of the posterior vaginal wall and the anus are quite free. The lower third of the vagina drains chiefly to the iliac and hypogastric nodes. Anastomoses with the vulva are also present. The middle and upper thirds of the vagina drain to the iliac and hypogastric nodes, and the uterus to the preaortic, utero-vaginal, superior, hemorrhoidal and sacral lymph nodes."

The foregoing description explains the frequency of inguinal bubo and the comparative rarity of rectal stricture in the male and the high incidence of rectal stricture and relative freedom from inguinal bubo in the female.

In the female the rectal wall, drained by the involved peri-rectal lymph nodes, becomes edematous and secondarily infected. A proctitis develops and a superficial ulceration of the lower rectum is a rather constant early finding. After several months or years a fibrosis of the surrounding lymph nodes and peri-rectal tissues occurs and a stricture results. Peri-rectal abscesses, rectal fistulae and hemorrhoids are frequent complications.

The systemic effects of lymphogranuloma venereum are often striking. Abdominal pain, an irregular fever and marked weakness usually occur early in the condition. A severe secondary anemia frequently develops. As the condition progresses, amyloid changes in the kidney and various degrees of cardio-vascular-renal disease are prone to develop.

Several patients in our series have shown mental symptoms. These patients deteriorate rapidly and many are semi-invalids before the onset of obstructive symptoms bring them to the hospital.

TREATMENT

The treatment of rectal strictures has been generally unsatisfactory. Numerous remedies have been suggested but none has proved specific. Antimony and potassium tartrate and fuadin have been widely used but with little success. Foreign protein, Frei antigen intravenously, tuberculin, copper ammonium sulphate and sulfanilamide have been given. X-ray, diathermy, Elliott therapy and carbon dioxid snow have been used locally. Operative procedures have varied from simple dilatation of the stricture to abdomino-perineal resections. The formation of a colostomy early in the disease followed by digital dilatations has gained increasing favor during the past few years.

Dilatation of the stricture in lymphogranuloma venereum is a hazardous procedure for the fibrous band frequently tears and if the rent occurs in the anterior rectal wall a generalized peritonitis results. The majority of these strictures are situated from three to eight centimeters from the anus. In the female the cul-de-sac of Douglas is only 5.5 cm. from the anal orifice. Any stricture in the female that requires the introduction of the index finger past the second joint in order to reach its upper limit is potentially dangerous. Every large series of rectal strictures has included fatalities from this cause and we recently had a death four days after gentle dilatation of the rectum and removal of biopsy. Peritonitis may follow dilatations in which the rectal wall is not torn. Death in these cases is the result of infection being massaged through a diseased rectal wall or rupture of an abscess into the free peritoneal cavity. Occasional spontaneous perforations of the rectum have been reported in this condition. In order to obviate these dangers in recent cases we have combined a colostomy with a chemical and mechanical obliteration of the cul-de-sac.

The method superficially resembles the Moschcowitz[4] procedure for rectal prolapse but the pur-

pose of the operation and the technic are entirely different.

In brief, the method is as follows: Under spinal anesthesia and with the patient in marked Trendelenberg position a left paramedian incision is made. Diseased tubes and ovaries are removed. The intestines and parietal peritoneum are protected with moist sheets. The peritoneum lining the cul-de-sac is painted with one-half strength tincture of iodine. Care is taken that the iodine comes in contact only with the area that will be covered by subsequent sutures. The cul-de-sac is then obliterated by purse string sutures of chromic catgut that include the lateral wall of the rectum and the parietal peritoneum of the pouch of Douglas. The sutures are tied in pairs to prevent distortion of the rectum. A final continuous suture approximates the posterior surface of the broad ligaments to the posterior parietal peritoneum and the anterior wall of the sigmoid. Care is taken in suturing to avoid the tubes, ovaries, ureters and pelvic vessels. A double-barrelled colostomy is made through a left McBurney incision. The loop of sigmoid is supported on a glass rod passed through the mesentery and the bowel is opened later with the cautery. This may remain as a permanent colostomy or the continuity of the bowel may be restored extraperitoneally at a later time.

The infection diminishes after diversion of the fecal current and the proctitis disappears. The stricture softens and responds to dilatation. The danger of peritonitis is obviated and, if desired, further local operative procedures may be carried out through the rectum with safety. Cases have been reported in which the stricture recurred after closure of the colostomy and restoration of the continuity of the bowel. We have not closed any of these colostomies and do not know if the stricture will recur but we feel that the safety afforded by obliteration of the cul-de-sac has justified its use should no further benefit result.

The pre-operative care of these patients is important. On admission a rectal examination is made to determine the location of the stricture and the degree of stenosis. If the stricture is within the danger zone and does not permit the free passage of the index finger, further local procedures are deferred until they can be carried out under direct vision. A Frei test and formalgel determination are made. A biopsy is taken to rule out possible associated carcinoma. A high caloric, low residue diet is given with mineral oil. Blood transfusions are given if the hemoglobin is below 60 per cent. Hot rectal irrigations cleanse the rectum and potassium iodide by mouth allays the discomfort.

All cases with definite rectal strictures are operated upon as soon as their condition permits. If the proctitis is severe and the Frei test is positive we now feel that a colostomy with obliteration of the cul-de-sac is indicated before an actual stricture has formed.

Following operation hot rectal irrigations are given by inserting the enema tip into the lower stoma of the colostomy and the patient is directed to continue this after her return home. The stricture is dilated in the out-patient department at frequent and regular intervals. These patients return for dilatations with surprising regularity following operation. This is due in part to the relative painlessness of dilatations after a colostomy has been established and also to the desire of the patient to facilitate her recovery in order that the colostomy may be closed.

Ten patients have received this operative treatment during the past eighteen months. No patients have died and all have been benefited by this procedure. They are now being followed in the out-patient department and I hope to be able to report on their ultimate result at a later time.

CONCLUSIONS

1. The majority of non-traumatic and non-malignant rectal strictures are the late results of lymphogranuloma venereum.

2. The treatment of this condition has been generally unsatisfactory.

3. A new operative treatment has been described which has given encouraging results in our hands.

This method, in brief, is the formation of a double-barrelled colostomy and a chemical and mechanical obliteration of the cul-de-sac. The colostomy aids by diverting the fecal current and promotes healing of the diseased segment of bowel and obliteration of the cul-de-sac permits dilatation of the stricture or other local procedures without danger of peritonitis.

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DISCUSSION

DR. HENRY LEE, Roanoke: My experience with different types of therapy in non-malignant strictures of the rectum has been most disheartening. A permanent colostomy alone gives little relief and serums proved entirely unsatisfactory. I have nothing to add to this paper but that this is apparently an excellent solution, and the only one with which I am acquainted that has very much promise.

DR. J. SHELTON HORSLEY, Richmond: I am very much interested in Dr. Warthen's method. I never had occasion to adopt it myself—I don't get many cases of this kind—but I am sure if I did, I would try to carry out Dr. Warthen's procedure.

The thing that impresses me particularly is that it is based on good physiological and pathological grounds, and there isn't any operation of the gastro-intestinal tract which should not be based on these grounds,—first of all, by giving rest to the diseased tissue by colostomy, and, second, preventing infection from spreading. Any tissue that is inflamed stands trauma very poorly. Recognizing these two facts, obliterating the cul-de-sac so as to prevent the spread of infection by rupturing into the peritoneal cavity, and giving rest to the tissue by a colostomy, strikes me as being very valuable, particularly for this type of operation.

DR. REUBEN F. SIMMS, Richmond: I want to congratulate Dr. Warthen for bringing this subject to our attention. From every State in the United States cases of lymphogranuloma have been reported. Unfortunately, it has gotten into literature as lymphogranuloma inguinale; I think Dr. Warthen's term is a much better term.

Following his operative procedure, I would suggest the use of tartar emetic and vaccine, because we can't tell just how far up his pathology extended, and there have been cases where colostomies were performed, only to find stricture at a higher point or to develop at a later date. Tartar emetic and vaccine treatment, I believe, would help to rule out this possibility.

DR. R. A. NICHOLS, JR., Richmond: This condition has had a great deal of interest to me for a long while. I think Dr. Horsley brought out an interesting point—that in his private work he sees very few of these cases. In my practice, I have had one case of lymphogranuloma venereum, but have seen numerous cases in clinic work. Whether or not that condition accompanies poor hygienic habits, or filth, remains to be proved, but it does seem to fall in that category.

The experience I have gained with the antimony preparations and iodides, that were strongly recommended, has placed them in the same category as the usual variety of hair tonics, and I have never seen any very gratifying results from their use, and I think this paper is extremely timely for that reason.

These individuals are sick; their condition is extremely chronic, as most pathologists send us back a report of granulomatous tissues, which may not mean anything definite. I think there is little chance to cure by any means less radical than this, and I think a good deal of publicity of a safe procedure—regardless of how radical—by which these individuals could live with a degree of comfort, would be a great thing for humanity.

DR. ARTHUR S. BRINKLEY, Richmond: I want to compliment Dr. Warthen on what looks to be really a panacea for this condition. I remember distinctly when on the service of the late Dr. Willis at St. Philip's Hospital we used to have quite a number of these cases coming in. I recall three cases in which dilatations had been attempted; peritonitis set in, and two out of the three died. It looks like Dr. Warthen has the solution to this proposition. If we could get these cases early and do a colostomy, I believe we could cure more of them.

In all of the cases we had, there was almost total obstruction, and a colostomy was performed first, and then resection. There is so much fibrous tissue in this disease that I am a little doubtful as to whether we are going to cure all of them or not—that is, whether they will ever return to normal. If we could get them earlier, perhaps we could, but the average clinic case does not present himself for surgery until there is almost total obstruction of the bowel.

I want to thank Dr. Warthen again for his presentation.

DR. WARTHEN, closing the discussion: Dr. Simms mentioned the use of tartar emetic and vaccine. We used fuadin and tartar emetic before we started the present operative treatment, and continued to use it for some time. Our results from medication alone were not encouraging, and we have about given up both those remedies. Maybe we have not given them a fair test, but we could not see any results from their use.

There is another thing I would like to bring out, in connection with Dr. Simms' discussion. We have seen two cases in which the granulomatous process more or less filled the pelvis, and involved all of the small bowel in the pelvis. The intestines were plastered together with old adhesions, but in neither case had a stricture appeared in the small bowel. We have fibrosis surrounding the rectum because of the encircling lymphatics, but in the small bowel it does not behave the same way.

Dr. Brinkley expressed doubt as to whether these patients will ever have a total return to normal, and I agree with him heartily. This is a preliminary report; whether these patients will ever have a normal rectum is problematic. I hope later to be able to tell you what happened to these patients. But I do believe that the safety from peritonitis that this procedure affords, plus the opportunity for dilatation and the use of heat, makes this operation worth while.

In closing, I want to thank Drs. Lee, Horsley, Simms, Nichols, and Brinkley for their very considerate discussion.

SULFANILAMIDE, WITH REPORT OF THE TREATMENT OF A CASE OF PUERPERAL SEPTICEMIA.*

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Probably the most outstanding medical achievement of recent years has been the development of sulfanilamide and its use in the treatment of hemolytic streptococcic infections and more recently of other infections.

Sulfanilamide was first prepared in 1932 by Meitzch and Klarer.[1] In 1935 Domagk demonstrated its bacteriostatic effect upon streptococcic infections in mice. Satisfactory results in the treatment of human puerperal infection were reported in 1936 by Colebrook and Kenny.[1] However, it was not until the convincing report of Long and Bliss,[2] of Johns Hopkins, in November, 1937, before the Southern Medical Association, giving a summary of the dramatic results achieved in the treatment of streptococcic infections in humans, that the interest of the medical profession was aroused.

In severe infections an initial dose of eighty grains of sulfanilamide in twenty-four hours is usually sufficient. The drug should be given at four-hour intervals day and night. After two days the dosage may be reduced to sixty grains for the next two days, then to forty grains, depending upon the clinical course, toxic symptoms, etc. If it is necessary to use the drug hypodermically, prontosil solution may be used in dosage of about 100 c.c. the first day (1 c.c. per lb. up to 100 lbs.), and then reduced to half this amount.

If blood sulfanilamide determinations are available it is desirable to have a blood concentration of 10 mgms. per 100 c.c. of blood in severe infections and 4 to 7 mgms. in mild infections.

While in the average case sulfanilamide is well borne, a number of toxic reactions[3] have been reported. These include acute hemolytic anemia, agranulocytosis, optic neuritis and a number of skin eruptions.

Mild toxic symptoms are general malaise, headache, anorexia, vertigo, tinnitus, and nausea.

Moderate toxic effects are cyanosis, numbness or tingling of the hands and feet, skin rashes, abdominal pain, diarrhea, fever, acidosis, and intoxication.

Severe toxic symptoms may be collapse, fever, and rapid pulse, leucopenia or agranulocytosis, hemolytic crisis, and jaundice. Mild effects may be disregarded. Moderate toxic effects should lead to reduction in dosage. Severe toxic effects demand an immediate withdrawal of the drug, forcing of fluids, and sometimes transfusions.

To avoid toxic effects the drug should be used only under the careful supervision of a physician. No saline cathartics or sulphates should be used while giving sulfanilamide. Ten grains of sodium bicarbonate should be given with each dose to guard against acidosis. The blood should be examined frequently to determine the presence of leucopenia or anemia. Toxic symptoms should be looked for and appropriate treatment instituted promptly.

The following case is reported on account of the dramatic recovery of an apparently moribund patient:

A white female, aged thirty-one, was admitted to the King's Daughters' Hospital March 23, 1938. She gave a history of inflammatory rheumatism in childhood, followed by heart trouble. One month before admission to the hospital she had a long drawn out labor, followed by headache, generalized muscular pain, chills, fever and a vaginal discharge with a disagreeable odor.

Physical examination showed a critically ill patient with waxen pallor, clammy skin, rapid, shallow respirations and no perceptible radial pulse. Temperature 102.4. The heart was enlarged, the apex being 12 cm. from the midsternum in the sixth intercostal space. There was a loud systolic murmur heard all over the precordium. The heart tones were very poor. The blood pressure was 78/60.

The liver was enlarged two fingers' breadth below the costal border and there was tenderness and rigidity in both lower quadrants of the abdomen. There was a slight bloody vaginal discharge with a disagreeable odor. Physical examination was otherwise negative. Blood examination showed red blood cells 2,600,000; hemoglobin 50 per cent; leukocytes 14,200, with a shift to the left on differential count. Wasserman negative. Blood culture non-hemolytic streptococci.

*Read before the Medical Association of the Valley of Virginia, May 26, 1938, at Harrisonburg, Va.

The day after admission the patient was started on sulfanilamide fifteen grains every four hours. After receiving seventy-five grains she became cyanotic, tired, and developed labored respirations and a weak irregular pulse. The dose of sulfanilamide was reduced to ten grains every four hours and she was given a transfusion of 300 c.c. of citrated blood. She had an immediate severe reaction, became irrational, and for several hours death appeared imminent. The next morning after a very restless night, active nausea occurred and sulfanilamide was discontinued. She was given 10 c.c. doses of prontosil intramuscularly every four hours for the next four days. By this time she was very much improved and was put back on sulfanilamide, seven and one-half grains every four hours. The following day her temperature was normal. Sulfanilamide, five grains every four hours, was given for two more days and then discontinued. Blood cultures March 28, 31, and April 11 were sterile. An elevation of temperature on April 11 was due to the unexpected development of chicken-pox to which she had been exposed before admission to the hospital.

The patient was finally discharged after thirty-eight days in the hospital. Her abdominal tenderness had cleared up and her general condition was fairly good.

COMMENT

Judging from the clinical symptoms of this case and the recovery after sulfanilamide therapy it is probable that the causative organism was a hemolytic streptococcus. The absence of additional positive blood cultures prevented further study of this point. This patient was seen by a number of consultants and for a period of about a week she appeared in extremis. The one transfusion of blood which she received was nearly fatal and apparently retarded her response to sulfanilamide. Her heart lesion, with decompensation, added gravity to her puerperal infection and made her recovery more noteworthy.

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DIVERTICULITIS OF THE CECUM—WITH CASE REPORT.*

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Diverticula may be noted at all points along the intestinal tract from the pharyngo-esophageal junction to and including the rectum. Diverticula may also be found in the bladder, the urethra, the ureter, and the biliary and pancreatic ducts though these are far less common than those of the alimentary canal itself. Such out-pouchings are far more frequently found in the colon and particularly in the sigmoid portion of the colon. Rankin and Grimes state that approximately 5 per cent of all the colon X-rays made for symptoms show the presence of sacculations in some portions of the large bowel.

In 1849 Cruvilhier adequately described diverticula of the colon.

The terms "chronic adhesive peritonitis" and "peri-diverticulitis", introduced by Virchow in 1853, marked the begining of pathological studies.

Edwin Beer in 1904 offered a very comprehensive consideration of the etiology and pathology. The first record of operative cases was made three years later by Wilson, Griffin and W. J. Mayo. Since that time the literature regarding this subject has become quite voluminous, and the importance of the condition in any differential diagnosis of abdominal symptoms has become increasingly apparent. Moreover, clinical and pathological considerations, formerly not even considered, are becoming daily of more apparent clinical importance.

The frequency of the occurrence of diverticula in various localities is given by Rosedale as in the following order: (1) colon, (2) Meckel's diverticulum, (3) duodenum, (4) pharynx, (5) esophagus, (6) stomach, and rarest of all in the jejunum.

On the contrary, Vernon C. David declares from the review of the literature that the most commonly

*Read before the Southwestern Virginia Medical Society at Abingdon, Va., April 14, 1938.

observed sites are in the upper and middle portion of the esophagus, the duodenum, the jejunum (Meckel's diverticulum), the colon and the bladder. The most unusual sites, according to him, are the larynx, the lower end of the esophagus, the stomach, the ileum, the ureter, the urethra, and the biliary and pancreatic ducts.

Apparently the most satisfactory classification of diverticula is that based on their origin, into the congenital and acquired types, because so-called true diverticula containing all of the layers of the structure from which they take origin may be either congenital or acquired and may eventually change into so-called false diverticula. In the latter instance, the herniating mucosa and sub-mucosa is the most conspicuous structure present in the false diverticulum.

From the first description to the present, various suggestions have been made relative to the etiology. These theories vary from muscle weakness, neuromuscular dysfunction, increased intracolonic pressure, potential weak spot in the intestines at the site of the entrance of the blood vessels, and vascular, stasis, to the degenerative changes of senility.

None of these theories has proved entirely adequate. The two outstanding etiological factors from the clinical standpoint seem to be age and constipation. The vast majority of cases appear in patients beyond forty years of age and patients almost invariably give a history suggestive of a sluggish colon.

Clinical considerations demand that the possibility of disease of a Meckel's diverticulum be considered in the differential diagnosis.

The term diverticulosis connotes the presence of sacculations from the intestinal wall, while diverticulitis implies the varying changes which occur as a result of irritation and inflammation; and since it is only as a result of the clinical symptoms caused by these last-named processes that the patient usually seeks medical aid, it is only with diverticulitis that we are particularly concerned.

The large bowel, it seems generally agreed, is more frequently the site of diverticula than is any other structure in the body, and it is with this large group of cases that this paper proposes particularly to deal.

Contrary to the lack of uniformity of opinion regarding the etiology of diverticula of the colon and of the rest of the alimentary tract in general, it is to be noted that the most commonly observed diverticulum of the ileum is the persistent intra-abdominal vitelline duct which was first accurately described by Johann Friedrich Meckel and comes down to us as the familiar Meckel's diverticulum. Here the etiology is definite. The vitelline duct connects the yolk sac with the mid gut and normally becomes obliterated in the seventh or eighth week of fetal life. The atrophy begins at the distal end and progresses until the bowel lumen is reached. Complete failure of obliteration will leave a double connection with the ileum at one end and with the umbilicus at the other from the latter of which feces will discharge. Obliteration at both ends will leave a double connection by a fibrous cord either to the umbilicus or to the bowel. Such a remnant may give rise to tumors of various types. Cysts, carcinoma, sarcoma and malignant myoma have been reported. Obliteration at the distal end leaves a tube of varying length connected with the ileum and connecting with its cavity. It may be found at any point of the small intestine below the duodenum, the usual location being from ten to twenty inches above the ileo-cecal opening. Its usual attachment is ante-mesenteric, and its length varies from a small protrusion to one (reported by Moll) thirty-three and one-half inches long.

Its distal end may be free or attached by a fibrous band to the umbilicus, mesentery or adjacent organ. In shape, it is spherical, conical, bulbous, or somewhat like the finger of a glove. Its walls consist of the known coats of the ileum, possessing at times Lieberkuhn's follicles, Peyer's patches, gastric mucosa and even accessory pancreatic tissue. Its incidence, as estimated from autopsy statistics, varies from 1 to 4 per cent in different series of cases.

This interesting remnant is responsible for a number of abdominal conditions which carry a potentially high mortality.

It is a prolific cause of intestinal obstruction from volvulus or intussusception as a result of its attachment to the umbilicus or some other portion of the parietal peritoneum, mesentery or intestine. The average age of complications from this source is thirteen years, with 49 per cent of the forty-two cases reported by Hertzer and Gibson under ten years of age.

Inflammation of Meckel's diverticulum simulates very closely that observed in the appendix both as

regards the symptoms, and the sequence of pathological evidence dependent upon it, for it causes diverticulitis peri-diverticulitis, abscess and perforative peritonitis.

With the history of persistent umbilical fistula or the finding of an ileo-colic intussusception in a subject beyond the age of infancy, Meckal's diverticulum is suggested. So, also, are right-sided appendiceal symptoms where the appendix is known to be absent.

X-ray studies peculiarly enough have proven of very litle value in the recognition of Meckel's diverticulum, probably because those confronted with the acute symptoms due to this condition have been fearful of roentgenographic examination as well as by the apparent inexplicable but none the less verified fact that they do not visualize well during such an examination.

The important lessons to be learned from the literature on Meckel's diverticulum are that its complications possess an inherently high mortality; and a prompt diagnosis at least of an abdominal emergency, with consequent operation, is important. Where such diagnosis has been made and operation performed, the surgeon must beware upon finding a normal appendix. Under such circumstances careful inspection and examination of the ileum, at least the last fifteen inches, should be carried out in order not to overlook what may be a very obvious and very dangerous condition for the patient. In view, too, of the possible dangers of a Meckel's diverticulum, it should be removed when encountered in the course of operation for other lesions, and, indeed, might justify routine examination of the terminal ileum in all laparotomies where the necessarily increased operating time and increasing handling of the abdominal viscera does not materially increase the risk to the patient.

Though we have mentioned the dangers from obstruction in Meckel's diverticulum, we have thus far failed to mention the less frequently seen but none the less dangerous ulceration with perforation and hemorrhage from peptic ulcers occurring in these structures. That these dangers are real, and not imaginary, may be seen by the report of four cases of rectal hemorrhage from Meckel's diverticulum by J. T. Chesterman, who declares that rectal hemorrhage in juveniles between the ages of five to fifteen years, especially of a boy, is very suggestive of Meckel's divrticulum, and urges laparotomy for the removal of an ulcer containing Meckel's diverticulum in cases where the cause is not revealed by sigmoidoscopy and blood examination.

He further states that the hemorrhage is sudden and severe, but in cases of growth it may be slight and continuous.

The pitfall of overlooking a Meckel's diverticulum at operation for acute appendicitis is brought graphically to our attenion in the news letter in the *J.A.M.A.*, August, 1935, from Paris, where at a meeting of the Société Nationale de Chirurgie two cases were reported, one by Deton and one by Huard, in which a preoperative diagnosis of peptic ulcer of Meckel's diverticulum was made and confirmed on examination of the specimen. Deton's patient, a youth of eighteen, had been operated on for appendicitis thirteen months previously by another surgeon. When seen by Deton, the chief complaint was of pain in the right iliac region and diarrhea. After a period of observation extending over a period of three months, several intestinal hemorrhages occurred and diagnosis of ulcer of Meckel's diverticulum was made.

At operation a Meckel's diverticulum with an epithelial lining and a rounded ulcer within it was found.

Huard was called to see a boy, aged eleven years, who had been taken suddenly ill with colicky abdominal pain and a history of having had several bowel movements containing clots and bright red blood. Palpation revealed slight tenderness a little to the right of the umbilicus. On account of sudden severe intestinal hemorrhage, Huard made a diagnosis of bleeding peptic ulcer in a Meckel's diverticulum. Laparotomy revealed such diverticulum with a large ulcer on its floor.

In the discussion, Moler reported having been able to find 100 cases of Meckel's diverticulum. All agreed that sudden intestinal hemorrhage with or without signs of perforation should always lead one to suspect an ulcer of Meckel's diverticulum.

We have already pointed out two characteristics of perhaps differential diagnostic value between Meckel's diverticulum and diverticulitis of the colon, namely, the age incidence and the location of the pain. Disease of Meckel's diverticulum occurs almost exclusively in young individuals, whereas diverticulitis of the colon occurs in by far the majority of patients beyond the age of forty, with only a few notable exceptions. The pain in Meckel's diverticulum is usually located just below and to the right

of the umbilicus, whereas, in the great majority of cases of diverticulitis of colon the pain is left-sided in character.

In order to evaluate the significance and importance of diverticula of the colon more rationally, we use the following classification:

1. Diverticulosis, including that group of cases in which evidence of diverticula is found by roentgenographic examination or at necropsy and in which, from all available data, the diverticula do not bear any relationship to the patient's complaint.
2. Diverticulitis
   a. Acute
   b. Chronic
   c. Complicated
      1. Abscess formation
      2. Fistula
   External
   Internal { vesicocolic / enterocolic }
   Multiple
3. Associated with malignancy.

The preponderance of symptoms and signs of complications occurring in diverticula in the left colon may be accounted for by the much more frequent distribution there (75 per cent, Hunt; 85 per cent, Abell; 77.8 per cent, Judd, Pollock and Mason) and to the fact that the walls are thinner, the lumen less distensible, and the bowel content more firm, together with the fact that there is greater proximity to the pelvic viscera with greater chance of involvement of the neighboring structures.

Abell estimates that inflammatory reaction occurs in 10 to 20 per cent of cases of diverticulosis.

SYMPTOMATOLOGY

First, of the uncomplicated cases. Symptoms here usually manifest themselves in some alteration in bowel habits. Rankin found in 254 cases studied that approximately 40 per cent of the patients complained of constipation alternating with an occasional spell of diarrhea. Associated with this was a variable degree of pain ranging from a mild heaviness, a fullness, or soreness, to severe cramps which often simulated a left-sided appendicitis. With increased narrowing of the bowel lumen by irritation and the inflammatory process a mass may be felt and a degree of obstruction will take place, with nausea, vomiting, and often stools of reduced calibre.

It is important to note that bleeding from such a case is rarely profuse. An occasional streak of bright red blood or tarry particles may be observed. It is distinctly out of the ordinary for such bleeding to be so pronounced as to require any particular treatment, and this one sign alone is not an indication for considering the case of a surgical nature since most will subside spontaneously. A blood transfusion is always in the offing in those cases which bleed sufficiently to demand it.

In summary, it may be said that the symptoms in the uncomplicated cases are due directly to the mechanical factors of a reduced lumen and fixation and ulceration which result from secondary infection.

The clinical diagnosis alone of this condition is dfficult and unreliable, but careful roentgenology is the most accurate means of recognition. Diverticula alone manifest themselves as rounded, lobe-like projections from the lumen of the colon and may show considerable variations in size.

With the advent of diverticulitis are added the roentgenological signs of irritability, chiefly spasm and hypermotility. All degrees of spasm and filling defect may occur which may occasionally lead to confusion with carcinoma. The differentiating points usually are the concentric contours in diverticulitis contrasted with the sharply irregular contours in carcinoma, and the maintenance of motility usually in the former as compared with immobility in carcinoma.

G. Jansson describes a "roentgenogram symptom" in diverticulitis of the colon which consists principally in a change in the mucous membrane relief and rigidity in the intestine. In considering the roentgenographic evidence, however, it should be pointed out that failure to visualize a diverticulum by this means does not necessarily preclude the possibility of its presence, because edema about the ostium of the diverticulum may prevent the entrance of the barium into the pouch.

Proctoscopy is another valuable means of examination in this condition, particularly so in the acute phase where one might fear to give a barium enema.

The presence of diverticula as revealed by this examination will often make the diagnosis. Rankin finds himself able to make the diagnosis in 40 per cent of diverticulitis by this means. When making the examination and establishing the diagnosis one must be most careful not to overlook cancer of the

large bowel. Since it has been a popular idea in the past that diverticula are so-called pre-malignant lesions, it should be pointed out that the relationship between cancer and diverticulitis apparently is not an actual fact but rather an incidental finding.

It is a well-established fact that cancer occurs no more frequently in patients suffering with diverticula of the bowel than in the general population, and Brown and Rankin found in 227 cases at the Mayo Clinic that cancer occurred coincidentally in diverticulitis in only four. Hunt likewise could find little evidence that cancer developed on diverticulitis.

Abell's study of the literature indicates an incidence of 1.8 per cent to 8 per cent. Bargen and Ochsner found malignancies in 6 per cent of their cases in which diverticula were discovered by clinical methods.

Conversely, at the Mayo Clinic in 679 cases of cancer of the colon operated, co-existing diverticulitis was found in only four. Nevertheless, it is often difficult and sometimes impossible to differentiate between the two lesions by X-ray and proctoscopic examination alone and, since bleeding is the most common symptom of cancer, when it occurs in the presence of diverticulitis it should be investigated as to the possibility of a co-existing malignancy.

However, bleeding alone without the other roentgenographic or clinical evidence is not sufficient to make such a diagnosis from diverticulitis alone. According to the articles which we have reviewed, bleeding is almost equally common in the two conditions.

In like manner, the diagnosis of the acute group which perforate into the peritoneal cavity with the formation of abscess is a difficult task, and, unless the presence of a diverticulum has been known previously, mistaken diagnosis is more apt to be the rule than the exception. Since the attack is usually ushered in as a peritoneal disaster of considerable fulmination, with low pain, leukocytosis, tenderness, and elevation in temperature, the condition is usually confused with appendicitis or ruptured duodenal ulcer. Such error in diagnosis is particularly bad since exploration of the left half of the colon from the usual incision for appendectomy or approach to a duodenal ulcer renders exploration of the descending colon and sigmoid difficult, if not impossible. Thus, it may be seen that it behooves the examining physician to consider the condition in any atypical case.

In those cases producing subacute or acute obstruction, the consideration of diverticulum itself is of minor importance. Usually the obstructive symptoms are sufficiently paramount to guarantee to the patient the surgical intervention which the condition requires.

The question of gross hemorrhage has already been discussed. It need only be emphasized that conservatism is the greatest virtue which can be exhibited by the physician confronted with such an occurrence.

Since the vessels eroded and causing such bleeding are usually small and very likely to collapse with fall in blood pressure, restraint of bowel activity and sedation, and heat to the abdominal wall is usually adequate therapy.

Obviously, an acutely inflamed diverticulum with a peridiverculitis might be expected to become adherent to and perforate into adjacent hollow viscera, and the literature is full of such cases, particularly the fistula formation between the sigmoid and the bladder. Such cases may actually give rise to hematuria and require cystoscopic examination for their elucidation.

Writers generally seem to be agreed that even in the face of ulceration and irritation, diverticulitis of the colon (particularly of the sigmoid) is more apt to produce melena and a localized slowly developing mass or abscess than it is to cause a generalized peritonitis, and experience seems to point to the fact that colostomy or simply irrigation of the affected portion of the bowel lumen effectually relieves the majority of such cases.

Finally, diverticulitis of the cecum is presented by Rankin as an unusual finding but, except for the case which he reports, we have been unable to find any other in the literature. His case was diagnosed preoperatively as cancer of the cecum. It was not until after a second operation and resection of the mass that its true nature was discovered. It is such a case as this that we wish to report.

The patient, Mrs. J. F. T., age fifty-six years, was first seen on February 12, 1938, suffering with acute abdominal pain beginning around the umbilicus, passing to the right lower quadrant where it became localized. It was associated with a sense of nausea but no vomiting. The patient gave a history of constipation extending over a period of about six months, but not increasing to any marked degree during that

time. Temperature 99.6; pulse 108/min. She had had no bowel movement on the day of her present attack. There were no associated urinary symptoms. No hematuria or melena.

Examination revealed a white female, rather thin but not distinctly emaciated, and apparently not acutely ill. Physical examination was negative except for slight abdominal distention and two plus tenderness in the right lower quadrant, most marked at McBurney's point.

Vaginal examination revealed marked tenderness high up in the right vaginal fornix and a sense of increased heat to the examining finger. The rectal examination showed some tenderness of the pelvic peritoneum but no mass was felt within the rectal ampulla. No rigidity of the wall was noted. No blood was seen on the examining finger upon withdrawal.

Laboratory examinations as follows:

Urinalysis showed: specific gravity, insufficient quantity; reaction, acid; albumin, trace; sugar, negative; sediment, negative.

Blood count: leukocytes, 8,250; diff. polys. 88; small monos. 6; large monos. 6; eosinophils 0; basophils 0.

Impression: Acute appendicitis. In view of the extremely low leukocyte count and the rather atypical onset, operation was withheld for thirty-six hours during which time the patient was kept under constant observation. Her pain grew no worse, but on the other hand did not subside. There was no change in her blood picture but, on repeated rectal examination, increased resistance was felt by the examining finger high up in the pelvis on the right side.

Careful questioning revealed that the patient had not been in good health for a period of about five years and that she had suffered a weight loss of ten to fifteen pounds in the last six months. Appetite had also been quite fickle but no qualitative or quantitative dyspepsia had been noted.

The question, therefore, of a malignancy of the cecum with possible perforation was debated. In view of the apparently acute character of the condition, barium enema was withheld. Laparotomy was advised and accepted.

The abdomen was opened through a mid right rectus incision and the sigmoid and terminal ileum exposed. Appendix appeared to be normal, but about one centimeter from its base on the lateral and inferior aspect of the cecum was seen a rounded mass about four by three centimeters which was moderately firm, extremely friable, fairly smooth. It was surrounded by masses of apparently recent peritoneal adhesions. The mesentery was carefully examined for lymph adenopathy but none could be found. There was no free fluid about the region of the tumor mass. It was carefully dissected free and the terminal ileum carefully palpated. There was no induration of the intestinal lumen but considerable friability and edema about the mass in the secum.

In a quandary as to whether the mass were malignant or inflammatory in nature, but lacking any regional lymph enlargement, it was decided to resect the mass, and the bowel lumen was reconstructed. The appendix was removed at the same time. The area was covered with a fringe of omentum. One rubber tissue drain was placed down to the site and the abdomen was closed in layers. The drain was removed on the third day. The patient developed an incisional infection on the fifth day which subsided by the tenth day. The wound healed and she was allowed to go home on the fourteenth day. She remained well and when last heard from, three days ago, continued so.

Pathological report by Dr. F. W. Foote, Jr., of the Department of Pathology, University of Virginia:

"*Gross description:* Rather firm mass 4x3x2 cm. One aspect smooth and appears to be serosal. It is moderately injected. On opposite aspect is a small bit of intact mucose, lxl cm., entirely surrounded by firm, yellowish white tissue in which are seen many dense connective tissue septa. On section, embedded in center of mass is a hard fecalith surrounded by a muscular appearing wall. This cavity communicates with the bit of mucosa by a narrow opening, and seems obviously to be a diverticulum.

"Accompanying the above is a slightly enlarged node. Seems essentially intact.

"*Microscopical examination:* Sections show the cavity in communication with the cecum. It is lined by intestinal epithelium somewhat flattened by the fecalith. In addition there are areas of ulceration. The muscular wall of the cavity is much attenuated, and infiltrated with mixed inflammatory cells. About the diverticulum is much scarring of the peri-cecal fat and connective tissue.

"The accompanying mole shows considerable lymphoid hyperplasia, and also an increase in num-

ber of reticulo-endothelial cells. Capsule much scarred and infiltrated with mixed inflammatory cells.

"*Diagnosis:* Sub-acute ulcerative diverticulitis of cecum with peri-diverticulitis.

"Fecalith of diverticulum.

"Subacute lymphadenitis."

We believe in view of the findings at operation and in the light of the now available pathological report, that this woman's case would have been better handled by simple medical measures or, in case operation was done and the mass resected, that the abdomen should have been closed without drainage, for we are confident that the removal of the drains with the withdrawal of contaminated material through the abdominal wound was responsible for the uncomfortable infection, which fortunately resulted in no fecal fistula. However, in view of the relative frequency of cancer of the colon as compared with the apparent rarity of diverticulitis of this region, we could not bring ourselves to believe that it was inflammatory in nature at the time and this materially affected us in our judgment.

The possibility of diverticulitis of the cecum should be borne in mind, we believe, for two reasons. In the first place, to save the surgeon the embarrassment of approaching such a pathological lesion through the usual McBurney incision under the mistaken impression of acute appendicitis. Removal or exploration of the mass in this case would have been utterly impossible through a muscle splitting incision. In the second place, it should be borne in mind so that if the evidences for the mass being inflammatory in nature exceed the evidences indicating a neoplastic origin, the abdomen may be closed and the patient treated medically, or a simple removal of the mass itself be performed without subjcting the patent to an extensive and dangerous bowel resection and anastomosis.

In summary, may we say that we believe in any case of an apparent acute abdominal condition which presents adequate manifestations to leave a real doubt as to its identity in the mind of the surgeon, even after the most careful and painstaking examination, the possibility of a Meckel's diverticulum or diverticulitis of the colon should be borne in mind and every effort be made to rule out the possibility of existence of these lesions before entering upon any surgical maneuvers.

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THE HYGIENE OF SWIMMING.

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History attests the popularity of swimming down through the centuries. The Greek or Roman youth who could neither read nor swim was ignorant indeed. It was Cato who taught his son to swim dangerous gulfs, and Caesar was himself an excellent swimmer. Charlemagne indulged with pride in this sport, as did Louis XI. Swimming the Hellespont in imitation of the hapless Leander, who was wont of nights to swim that strait to Hero's turret by the murmuring sea, was an aquatic feat of which Lord Byron was ever proud.

Dawn of the present century marked the advent of public swimming pools in this country, and so popular is swimming today, that these pools have practically doubled in number in the last decade. Few of us recall that our grandmothers or even our mothers, with all their gifts and graces, could lay claim to aquatic accomplishments, but now the child over eight years of age who is not more or less of an expert in the water is almost the exception. Coincident with the increase in the popularity of swimming, there has occurred seasonally with the opening of the public bathing pools and beaches a corresponding increase in infections of the ear and sinuses.

From the time of the ancients public bathing places have created a recognized problem in sanitation. It is a matter of historical record that methods of filtration were in use 400 years before Christ, and that the Chinese used alum in their public baths before the Christian era. The ruins of the great Baths of Trajan, of Caracalla and of Diocletian are but reminders that in imperial Rome bathing became a luxurious art. The magnificent structures, to which the name thermae properly attaches, contained chambers for cold, hot, tepid, sudatory and swimming baths, not to mention dressing rooms and gymnasia, museums and libraries, covered colonnades and extensive grounds filled with statues, all open to the public free of charge.

The work of sanitary engineers in our day along the lines of pool construction, the study of the bacterial content and clearness of water, contamination from sputum, diseased bathers, personal cleanliness of bathers, laundering of suits, sanitation of premises, and the rules for bathers before entering and while in the water, indicates that advances in sanitation have kept pace with the rapid increase in public bathing places throughout the country. The chemical treatment of the water, chiefly with liquid chlorin, and such mechanical measures as filtration, the ultraviolet ray and the passage of water through an ozonating apparatus have reduced contaminated water as an etiologic agent of infections of the upper respiratory tract caused by swimming to so negligible a factor that other causative agents must be of major importance.

My interest in these factors was quickened by observation of two groups of patients with sinusitis from swimming, one of which used exclusively a spring-fed pool with a flow of 3,000 gallons a minute and the other a pool, also spring-fed, with a flow of 30,000 gallons a minute. Chemicals, often alleged to be irritants to the nasal mucous membrane, were not used in either of these pools because repeated bacterial examinations of the water, made by the Florida State Board of Health, failed to show more than 150 bacteria per cubic centimeter. There was no evidence of contamination in the relatively pure spring water, having a temperature of 71 F., which both of these groups of patients were using.

Biology, the fundamental study of all phenomena of life and its manifold relations, reminds us that man derives his existence from the same ultimate sources that all other living creatures do and is subject to the same natural laws. A terrestrial being, he is adapted to his environment, but the fact that he has few structural adaptations for an aquatic environment has been largely ignored.

A summary of certain structural adaptations found among the animals whose normal habitat is water but emphasizes man's lack of anatomic and physiologic modifications such as they have for life in the water. There is no essential difference in the epithelium which lines the respiratory passages of the air-breathing animals, including man. In all, the usual stratiform flat epithelium lines the nasal vestibule and gradually assumes the structure of true respiratory mucous membrane, the stratiform ciliated cylindric epithelium. The latter is designed to keep moist the tracts through which a current of air is constantly

passing, to warm the air, and to secrete a mucus, both inhibitory to bacterial growth and bactericidal, in which the bacteria are enmeshed and carried by the wavelike motion of the ciliated epithelium to the pharynx and esophagus for disposition. The difference between man and the aquatic animals is not found here. It lies rather in the fact that those animals which are highly modified to live in the water close involuntarily or at will the anterior nares and thus protect their respiratory epithelium from the destructive action of water.

In the alligator, the highest form of reptilian life, the muscles of the anterior nares are so arranged that they close the nostrils when the head is submerged. Among aquatic birds, the booby, a bird that dives from some distance above the water to catch its prey, has no external nostrils, but the small elongated tongue, set up on a narrow stalk can be plugged directly and tightly into the internal nares. Also, the true opening of the trachea has a padded margin of muscle and connective tissue, the rima glottidis, which can be tightly closed. This valvular arrangement is supported by the ligula laryngis, a crest or projection on the thyroid cartilages, itself cartilaginous. The cormorant and the snake bird also lack external nostrils and have a similar protective mechanism. The diving petrel has external nares, but they may be closed tightly, much as the alligator closes his. Minute, hairlike slits serve the penguin for external nostrils, but the arrangements in the glottis and internal nares are similar to those of other birds. The scale-like membrane entirely closing the external nostrils of the frigate bird indicates transition from open nares. Although the external nares of some aquatic birds cannot be closed, in the species reviewed water in no instance comes in contact with the parts lined by the respiratory epithelium.

In the mammalian groups forms modified for life in the water have arisen. The beaver, the hippopotamus, the seal, the walrus, the manatee and the dugong have a musculature which closes the nostrils and protects the stratiform ciliated epithelium. A similar arrangement of the anterior nares exists also in the cetaceans, a group more highly modified to life in the water than any other among the aquatic mammals.

The anatomy and physiology of the ear of aquatic animals also show the modifications nature has provided for their protection in the water, provisions conspicuously absent in man. The alligator, for example, has immediately behind the eye a hinged cornified flap which constitutes a covering for the ear. It closes tightly as the reptile submerges and thus prevents water from coming in contact with the membrana tympani. Other aquatic animals such as the beaver and the hippopotamus have an analogous modification.

Nature has provided the warm blooded aquatic animals with adequate means of coping with their environment and maintaining their bodily temperature. The cetaceans, for example, live their entire lives in cold water and many of them maintain a higher normal temperature than man. Immediately beneath the integument a thick layer of blubber, which is a nonconductive dense fat, performs the function of keeping their bodies warm. Other aquatic animals living in cold climates, such as the seal, the walrus and the sea-lion, have in addition to the fatty layer, a heavy coat of fur.

But what of man's adaptation for water? He is equipped with nothing homologous to the musculature aquatic mammals have for protecting from water the nasal cavities and their appurtenances. Anatomists have found that the compressor narium of man, that small muscle rising from the superior maxilla and inserted by an aponeurosis across the bridge of the nose into its fellow of the opposite side, is a small rudimentary muscle at best and very hard to demonstrate. With the dilator naris anterior and the dilator naris posterior, which oppose it, its function is merely to confer facial expression. Students of comparative anatomy and of biology are agreed that man is so far removed from being an aquatic animal that he is without adaptation for an aquatic environment. When he assumed the upright position, he also lost the drainage by gravity of his maxillary and sphenoidal sinuses, leaving it solely dependent on the wavelike cilia of the ciliated epithelium. It is evident, therefore, that aquatic animals have adaptations for keeping water from the nasal and aural cavities and for maintaining bodily temperature in water which are not only sufficient for their mode of living but far superior to any means at the disposal of man. Also, in these animals drainage of the sinuses is more complete than in man because the ostia are so situated that drainage by gravity is a material factor.

The protective mechanism of the human nose con-

sists chiefly of the secretion of mucus, the ciliary action of the epithelium and the high degree of vascularity of the submucosal stroma over the turbinates. A thin, tenacious mucus, secreted by goblet-cells and serous glands, moistens the ciliated epithelium which lines the nose and its sinuses. Changing every fifteen or twenty minutes, this mucus moves rapidly, continuously and smoothly along the walls of the sinuses, backward along the turbinates and downward in the pharynx, propelled by the cilia until it reaches smooth epithelium and is carried into the esophagus. The antibodies which the mucus contains are elaborated in the epithelial cells, making this mucous film highly resistant to bacteria. The sinuses are thus kept practically sterile under normal conditions. The submucosal stroma is highly vascular over the turbinates, making possible a rapid inflow of blood when irritants interfere with ciliary action; it is, however, very thin and lacking in blood supply in the sinuses. The ciliated epithelium lining the nasal cavity also lines the orifice and proximal end of the eustachian tube, offering with its wave-like motion an effective protection against aural infections. Any interference with the functional activity of this protective mechanism, whether mechanical, chemical or thermal, breaks down nature's barriers and renders the nasal cavity and its appurtenances susceptible to infection.

Sinusitis, secondary to swimming, may result from foreign bacteria which gain entrance to the deeper portions of the nasal apparatus and conjoined structures, or from bacteria normally and constantly present in this region which multiply to pathologic proportions in individuals with lowered resistance. The nasal mucus, inhibitory to bacterial growth as it is, is washed away as a result of diving, leaving the mucous membrane exposed to the destructive action of water. Fenton[1] mentioned the irritative action of water on this membrane, stating that by osmosis it draws out the saline element, causing edema and acidosis of cells, loss of ciliary activity and eventual death of cells, thus lowering local resistance. Diving also inhibits the vibrations of the ciliated epithelium, as do reduction of temperature and irritating chemicals, thereby affording an opportunity for infection not only to invade the nasal passages but to enter the eustachian tube and travel to the tympanum. Virtually all cases of otitis media are interdependent on infection of the nose or sinus. Obviously, many infections of nasal and aural passages follow indulgence in the sport of swimming and diving.

Lowered resistance, which renders the individual more susceptible to the pathogenic organisms normally harbored in the upper air passages, is of paramount importance as a possible causative factor of sinusitis following swimming. A primary consideration here is the length of time one can remain in the water without reducing the temperature of the body and thus lowering resistance. Cold water has a veritable appetite for heat. The swimmer has only to dive from air of moderate temperature into water of exactly the same temperature to be reminded by the resulting chilling shock that lips get blue and teeth chatter in "temperate" water because the water takes away heat from the body twenty-seven times faster than air does. It follows then that prolonged cold baths cause the body to lose heat rapidly. Fox[2] stated that a bath of from fifteen to twenty minutes' duration with the water at a temperature of 70 F. may cause the loss of heat to increase to fivefold that of the normal basal rate; in strong, normal persons, however, this loss does not result in an immediate lowering of bodily temperature, but if the bath is prolonged, the production of heat fails to keep pace with the loss, and the temperature of the body falls.

Pasteur[3] and others found that chilling lowers resistance. In a study of lowered resistance from chilling in relation to sinusitis following swimming, the temperatures of 250 children under thirteen years of age were taken under my direction, both before and after they had been swimming for forty-five minutes in an indoor pool with the temperature of the water at 73 F. Only thirty, or 12 per cent, maintained a normal temperature, and of the remaining 220 all showed a reduction of temperature, many to as low as 95 F.

It has been shown that prolonged chilling of the bodily surfaces causes a decreased motility and phagocytic activity of the leukocytes. Also, it is now well established that the chilling of these surfaces causes constriction of the blood vessels in the skin and periphery, which is followed by a constriction of the blood vessels of the nasal mucous membrane. The autonomic nerves regulate and control the functional state of the mucous membranes, including their secretory and ciliary activity, and this state is intimately related to the functional state of the peripheral blood vessels. Owing to peripheral

vasoconstriction, the skin becomes relatively ischemic when the body is exposed to low temperatures, especially in the absence of muscular activity, and since the autonomic orientation of the respiratory mucous membrane corresponds to that of the skin, this membrane also becomes ischemic. Prolonged ischemia of the mucous membranes naturally reduces the local resistance and favors infection. The defensive inflammatory reactions of these membranes elicited by the toxic substances resulting from infections depend, however, on the autonomic status of the tissues as such.

A study of some of the underlying physiologic disturbances which predispose the individual to upper respiratory and aural infections following swimming led me to conduct an experiment recently at Jacksonville Beach, Florida. Eight lifeguards at this resort were subjected for forty-five minutes to swimming in the ocean with the water at a temperature of 68.5 F. Just before and immediately after this period the weight, temperature, blood pressure and blood count of each swimmer were ascertained. After the swim all of the participants exhibited a diffuse generalized purplish hue, and their lips and nail beds were moderately cyanotic. The rectal temperature showed an average reduction of four degrees. The erythrocyte count showed an increase of from 700,000 to 1,500,000 cells; the leukocyte count showed a consistent increase of from 8,000 to 10,000 cells. The differential count showed a normal Schilling index. Both the systolic and the diastolic pressures were increased, the diastolic showing the greater average rise, which was from twenty to thirty points. These findings indicated that prolonged chilling produces peripheral vasoconstriction, peripheral stasis and anoxemia.

How long then should one remain in the water? Even after taking into consideration the wide variation in individual reactions, it appears that children should not remain in the water longer than thirty minutes and that non-swimmers of any age in water ranging in temperature from 70 F. to 75 F. should remain no longer than twenty minutes. These periods should be materially reduced where bathing in the surf brings to the fore the factor of fatigue. Shock the healthy person can take with benefit, but prolonged submersion of the body in an element which rapidly robs it of its natural heat is plainly conducive to lowered resistance and invites infection.

Lacking adaptation to an aquatic environment as he does, man nevertheless has one natural means of protecting the mucous membrane of the nasal passages when swimming. That is the proper method of breathing. By exhaling through the nose while the head is submerged and inhaling through the mouth while the head is above water, the swimmer tends to maintain a positive air pressure in the nasal cavities and thus protects the sinuses and eustachian tube from water. In the new strokes which require partial or complete submersion of the face and head, this method of breathing is highly important. Just before diving, the swimmer should take a deep inhalation through the mouth and then exhale slowly through the nose while under the water. The rush of water into the nasal cavities, incident to diving feet foremost, may readily cause acute infections of the sinuses, middle ear and mastoid in swimmers of all ages.

Under proper conditions swimming is healthful both as exercise and as recreation. Man is, nevertheless, a terrestrial being. When out of his normal sphere, he should understand and cope intelligently with the limitations nature has placed upon him.

SUMMARY

Modifications for life in the water, such as are common to aquatic animals, are so conspicuously lacking in man that controlled conditions pertaining to time spent in the water, bodily temperature and proper methods of breathing are important factors in minimizing some of the common hazards of swimming. Exposure of the nasal and aural cavities to water and lowered resistance from chilling favor infection in swimmers. By heeding the handicaps of nature and not ignoring the fundamental laws that govern his being, man may make of the popular sport of swimming an important adjunct in promoting the health of the nation.

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THE RELATION OF THE VETERINARIAN TO THE MEDICAL PROFESSION.*

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To have the privilege of appearing before the Members of the Faculty and Senior Class of the Medical College of Virginia is a signal honor as well as a definite responsibility. It was my good fortune to have been for nine years a member of the veterinary faculty of one of our state colleges and for eleven additional years to have been associated more or less intimately with members of the medical profession. This experience has, I believe, enabled me to obtain a rather comprehensive understanding of the problems of both groups and to recognize the fact that the two professions have more in common than a superficial examination would disclose.

It is always heartening to those of us who admire the great Osler to remember his intense interest in comparative pathology during his formative years. Many of his earlier publications were concerned with problems of a strictly veterinary character and, like all things that Osler accomplished, they were well done. His interest in disease in all species of animals and his continued appreciation of the ubiquity of morbid processes still provide inspiration for every student who desires to understand medicine comprehensively.

Fundamentally, veterinarians and physicians are concerned with identical problems. These are, briefly, the diagnosis of disease, its treatment or alleviation and its prevention and control. More specifically, the veterinarian functions in three distinct though somewhat overlapping fields: (1) administering to sick and injured animals, (2) protecting a billion-dollar livestock industry against losses from infectious and parasitic diseases, and (3), the protection of the public against those diseases of animals that are communicable to man. The last function constitutes a very definite responsibility and one in which complete cooperation and coordination with the physician is essential if the public welfare is to be properly served.

To review briefly the present status of the veterinary profession in America a few words concerning the number of veterinarians and the facilities for veterinary education would seem pertinent. At the present time there are in Canada and the United States approximately 12,000 graduate veterinarians. In America there are only twelve institutions offering courses leading to a veterinary degree; ten of these are located in the United States and two are in Canada. All of the institutions in the United States are part of a state university or state college. The last private veterinary college closed its doors more than ten years ago. Eight of the twelve schools require at least one year preveterinary work of college grade before the student may matriculate in the veterinary school proper, and four years of professional training are required for a degree. The total enrollment in the twelve schools during the current (1937-38) year is 2,772. The great interest of young men (and a very few women) in veterinary medicine as a profession is indicated by the fact that most of the schools have been forced to limit the freshman class owing to a lack of teaching facilities. Cornell University, for example, during the past summer considered the applications of 276 prospective students but only forty were admitted. The enrollment for the freshman class last fall in the different schools varied between forty and sixty.

The fact that more prospective students desire to enter veterinary schools than can be provided for is not unlike the situation that confronts the medical schools. In both instances the condition is a healthy one in that students of superior caliber can be selected. This eventually results in raising the quality of the entire profession, and I think it can be said that just as we have better trained physicians today than we had twenty-five years ago, so we also have veterinarians who are better qualified to discharge the duties and responsibilities society properly expects from the professional training that is provided in a large part by public funds.

Although disease processes have affected men and animals since prehistoric times, certain circumstances of civilization have definitely permitted many of the diseases due to bacteria to become more prevalent as civilization advanced. Crowded conditions of living, artificial housing, unnatural food, pampering of the

*Presented by invitation before the senior class of the Medical College of Virginia, Richmond, May 7, 1938.

physically unfit, and the opportunity for pathogenic bacteria to be transported great distances within a comparatively short time, all contribute to the difficulty of controlling infectious diseases among animals and human beings. The fact that many of the most important bacterial diseases of animals may occasion serious sickness or even death in human beings makes it imperative that knowledge of the transmissibility of animal diseases be better understood by both the physician and the veterinarian.

The daily press has done much to inform the public at large concerning the danger to man of certain diseases that are primarily of animal origin, yet it is only those instances in which a relatively large number of persons are affected that receive sufficient attention to incite in the average person more than a passing interest in this phase of the public health problem. When it is realized that animals are susceptible to a list of diseases almost as large and as varied as those which affect human beings, the general public will better appreciate that there are other than economic reasons for the control and eradication of animal diseases.

The economic loss to the livestock industry of the United States due to preventable diseases of livestock mounts to a stupendous figure annually. This loss, being of a tangible nature and capable of being represented by dollars and cents, stimulates a certain vigilance on the part of the various Federal and state authorities. In those diseases of animals which are directly or indirectly communicable to man, it is extremely difficult to arrive at a means by which the damage done can be adequately and properly expressed. Anyone who has seen a child suffering the horrible agonies of a death from rabies or who realizes the danger in the consumption by human beings of raw milk from tuberculous cows does not require further evidence that there are reasons aside from economic ones why infectious disease of animals must be controlled.

Without the cooperation of the physician, the veterinarian, and general public, satisfactory control of the diseases of animals that are transmissible to human beings is impossible. The cooperation of the general public can be obtained only by enlivening in the public's mind an interest in all matters pertaining either directly or indirectly to the problems of public health. This is best done by the dissemination of information relative to the diseases or conditions which may menace the life or well-being of the public, not collectively, but as individuals. Physicians and veterinarians can usually be depended upon to cooperate when each understands the functions and limitations of the other. Neither can do the task satisfactorily alone.

A list of the diseases of animals which are communicable to man includes the following:

A. Diseases of domestic animals and birds

Tuberculosis	Swine erysipelas
Anthrax	Cowpox
Foot and mouth disease	Glanders
Malta fever and abortion disease	Rabies
	Psittacosis
Milk sickness	Certain parasite diseases

B. Diseases affecting rabbits and small rodents

Plague	Rat-bite fever
Tularemia	Rocky Mountain spotted fever
Infectious jaundice	

In this discussion no attempt will be made to deal specifically with all of the diseases of animals which are transmissible to man. However, since I am especially interested, as an experimentalist, in tuberculosis, I would like to devote a few paragraphs to this disease and discuss briefly one or two others.

Nothwithstanding the fact that notable advances have been made in the campaign against tuberculosis, its final eradication or control constitutes one of the most important and stupendous undertakings confronting those charged with the betterment of public health. The progress to date has been tremendous, and if the program of the fight against the disease, as outlined, can be strictly adhered to, its ultimate suppression may be expected.

As you well know, in addition to man, tuberculosis affects many of the lower animals, including practically all of the domestic species, many of the captive wild animals, as well as fish and reptiles. Human beings are usually affected by the human type of the organism. Studies in the United States have shown that, in extrapulmonary tuberculosis of adults, the bovine type of the organism occurs in 3 to 4 per cent of the cases. Until recently, pulmonary phthisis was considered as almost invariably due to the human type of the tubercle bacillus, yet Griffith in 1933 reported forty-nine instances in which bovine tubercle bacilli were demonstrated in the sputum of patients in England and Scotland. In so far as I am aware, no instance of pulmonary tuberculosis in the human

being due to the bovine form of the tubercle bacillus has been reported from America. It is said that approximately 40 per cent of the cattle in Great Britain are tuberculous; hence the statement that 6 per cent of all deaths from tuberculosis in that country are due to the bovine type of the tubercle bacillus, while startling, is nevertheless credible. A considerable number of cases of pulmonary phthisis due to the bovine type of the tubercle bacillus has also been reported from Denmark where the incidence of tuberculosis among cattle is also high.

Tuberculosis in cattle is usually due to the bovine form of the organism, whereas chickens, pigeons, turkeys, geese, ducks and pheasants are affected with the avian type. Each of the three varieties of the bacillus mentioned may cause tuberculosis in swine. The human being seems to be extremely resistant to the avian form of the organism and infection from this source is rare.

Other possible sources of danger to man from tuberculous animals are dogs and cats. Dogs are susceptible to both the human and bovine forms of the tubercle bacillus, but tuberculosis in the cat from the human type of the tubercle bacillus seems unlikely since in none of the reported cases has the bovine type been found to be responsible for the disease. Parrots are usually infected with the human or bovine type of the organism and, when infected, these birds must be considered a menace to human beings.

Without question tuberculosis still remains one of the most important diseases with which man has to cope, and an understanding of all possible factors pertaining to the dissemination of the agents responsible for the infection is not only desirable but necessary if the sympathetic understanding and cooperation of the public is to be obtained in suppressing this insidious scourge. The campaign for the eradication of bovine tuberculosis is national in scope and is under the direct supervision of the United States Department of Agriculture. Splendid progress has been made in the two decades the work has been under way and already there has been a very noticeable diminution in the amount of infection in children from the bovine type of the organism. We should, however, be watchful that the importance of the subject be not minimized and ever mindful of the fact that tuberculosis of animals, and particularly of cattle, may be transmitted to human beings. We should therefore tolerate no compromise with measures that would lead to the ultimate elimination of this insidious disease which is truly preventable. Indicative of the success of the campaign against tuberculosis in cattle is the fact that, on January 1, 1938, the amount of infection was less than 0.5 per cent in all but thirty-two of the counties in the United States. Ten of these counties were in South Dakota and twenty-two were in California.

This improvement in the situation with regard to bovine tuberculosis exemplifies, I believe, the splendid results that can be accomplished by close cooperation between the veterinary and medical professions. It is true that the administrative responsibilities and the mechanics of the millions of tuberculin tests that were necessary to achieve these results were entrusted to veterinarians, yet the number of foresighted physicians who assisted in organizing the attack are legion. As a result of the insistence of the public health physician most municipalities now require that the milk sold for human consumption be from tuberculin-tested herds, and as a further safeguard most milk must also be pasteurized. As a consequence of this unity of function between the physician and the veterinarian the United States undoubtedly has the safest milk supply of any nation in the world.

The importance of the subject makes a few words necessary concerning undulant fever. From the standpoint of the number of animals affected and the economic loss resulting therefrom, Bang's disease of cattle is by far the most important disease affecting the dairy industry. The disease has been recognized for over a hundred years and it is prevalent among cattle throughout the entire world. The cause of the disease, *Brucella abortus*, was discovered by the Danish veterinarian, Bang, in 1896. This organism is closely related to the microörganism responsible for a similar disease in swine and a disease in goats known as "Malta fever". The swine form of the disease occurs largely in the United States, particularly in the Middle West, and in northern Europe, whereas Malta fever occurs most frequently among the goats of Mediterranean countries and in certain areas in the southwestern part of the United States. As you know, the three organisms are so nearly alike that sensitive laboratory tests are necessary in order to separate them. Since 1924 there has occurred in man (particularly in the United States) a disease resembling Malta fever of the Mediterranean countries, but in which there has been no contact with goats or goat's

milk. This is the disease known as "undulant fever".

In cattle, the etiologic agent of abortion disease inhabits the uterus and mammary glands and may provide a source of infection for other cattle when eliminated with certain of the bodily discharges. The presence of the bacteria in the milk of many infected cows naturally brings raw milk under suspicion as the cause of the disease in human beings, provided that it is definitely known that the patient has had no contact with goats or partaken of goat's milk. The accusation is strengthened by the fact that many of those affected have been heavy consumers of raw milk from cows known to be affected with abortion disease.

Pasteurization of all milk has been advocated by some as the easiest and most direct way of rendering milk safe. However, the facts do not warrant the assumption that even though all milk were pasteurized there would be no more cases of undulant fever. To pasteurize the milk and neglect the infection at its source, which is the infected cow or swine, is to establish a situation which must be continued indefinitely. While a few individuals who otherwise would contract the disease might avoid infection by this means, the most important phase of the problem, which is the eradication of the disease from farm animals, is relegated to a minor position.

However suggestive the evidence implicating cows' milk as the cause of more than an occasional case of undulant fever in man, it certainly cannot be considered conclusive. The fact that in many cases undulant fever has occurred among workers in packing houses where contact with infected hogs is common, emphasizes the possibility of infection from sources other than milk. It is apparent that the knowledge we possess concerning the transmission of the bacillus of undulant fever from animals to human beings is entirely inadequate to explain all the facts satisfactorily.

Since the incidence of the disease in man is very low (only 2,095 cases were reported in the United States in 1936) the likelihood of undulant fever reaching alarming proportions is negligible. There has been a tendency I think to magnify the possibilities of contracting undulant fever from the drinking of cows' raw milk which is entirely out of proportion to the actual hazard involved.

Physicians interested in epidemiology have contributed much valuable information pertaining to the possible sources of infection with undulant fever. It seems especially important that the diagnosis of every clinical case of this disease be confirmed if possible by the isolation of the infective agent and the determination of the type of bacterium by appropriate laboratory procedure. Most strains of *Brucella abortus* have sufficient distinguishing features to enable the type to be identified, and when possible this should be done in order to trace the source of the infection.

At the risk of exhausting your patience I feel obliged to say a few words about rabies, the disease that someone has designated as "the most dreaded of all human diseases". The situation created in the United States by this fearsome and truly preventable disease constitutes a major challenge to physicians and to veterinarians alike. That an enlightened citizenry should practically eliminate typhoid fever, make notable progress in bringing tuberculosis under control, and control smallpox and diphtheria effectively yet tolerate this menacing threat to human life with apparent complacency, is indeed cause for concern.

While rabies occurs in practically all animals, the frequency with which it appears among dogs explains its importance from a public health standpoint. Illustrative of the fact that the disease is most prevalent in dogs are the figures showing the number of cases of rabies in animals in the State of Maryland for the ten-year period prior to 1928. They were: Dogs 462, cats 20, cows 3, calves 3, horses 1, mules 1, sheep 1, hogs 1, and gray squirrels 1. If the disease could be eliminated from dogs the danger to human beings from rabies would be negligible since in the great majority of cases the disease develops as a consequence of the bite of an affected dog.

The symptoms of rabies are in general much the same in all animals. The disease in the dog, however, provokes the most suggestive behavior, probably because of the relatively high degree of intelligence possessed by the majority of these animals. After an average incubation period of from twenty-one to forty days, the dog exhibits a change in disposition. He is restless, inclined to be irritable, and easily excited. As his restlessness increases he may bite at imaginary objects, and when approached even in a friendly way, may snap at the proffered hand. Such dogs are easily startled by any sudden noise. They have a tendency to run in a wild and aimless fashion and

they may wander as much as twenty-five miles from home. In this stage of the disease the dog is said to be affected with "furious rabies" and he exhibits an aggressive behavior toward other animals and man which may result in the disease being spread over a considerable territory. The "furious" stage may be mild and of a short duration and be followed by paralysis which affects the throat and muscle of the lower jaw.

The disease may assume another form, however, in which the muscles of the jaw are paralyzed almost from the beginning. This is known as "dumb rabies". Being unable to bite, the dog remains quiet. His lower jaw drops, he cannot close his mouth, and his tongue hangs out. He remains quite helpless and apparently has no desire to bite. Occasionally the symptoms of dumb rabies follow the aggressive behavior that characterizes the furious form of the disease. As a consequence of the paralysis the dog has great difficulty in swallowing. The mere sight of water will occasionally cause a spasm of the throat, hence the name "hydrophobia". As the mouth hangs open, saliva may drool from the lips. Progressive degeneration of the spinal cord results in a paralysis that gradually extends to the legs, and the animal is unable to rise and soon reaches a stage of exhaustion which ends in death. Once the symptoms become manifest, in the dog the disease usually runs a rapid course which rarely extends beyond four or five days and is with very few exceptions always fatal.

While the symptoms of rabies are fairly characteristic, a definitely conclusive diagnosis of the disease can be made only by laboratory studies including an examination of the brain.

In case of a bite by a rabid dog it is of paramount importance that medical supervision be instituted immediately. The dog responsible should if possible be captured alive. Contrary to common practice the animal should not be killed, since it will be of the greatest diagnostic assistance if the dog be confined in a safe place and carefully observed for a few days. If the dog is affected with rabies, death will usually occur within from three to five days, in which case the brain should be removed for the purpose of obtaining a laboratory diagnosis. If instead of dying the animal becomes normal and is alive after two weeks, the possibility of its having been affected with rabies is remote and the persons bitten will be saved much anxiety and perhaps the inconvenience and expense of antirabic treatment.

Indicative of the situation with regard to rabies in certain parts of the United States at the present time are the figures on its incidence in Alabama. From January, 1922, to August, 1936, a period of approximately fourteen years, a positive laboratory diagnosis of rabies was made on 9,282 animals; 34,864 human beings were given antirabic vaccine, and forty-two persons died. The report of the Public Health Service shows that for the year 1936 there were reported from twenty-five different states 4,853 cases of rabies in animals, with sixty-nine deaths of human beings. The states in which the greatest number of cases of rabies in animals occurred in 1936 were: Massachusetts, 109 cases; New Jersey, 195 cases; Indiana, 644 cases; Illinois, 318 cases; Missouri, 118 cases; South Carolina, 375 cases; Alabama, 885 cases; Mississippi, 243 cases; Louisiana, 269 cases; Texas, 154 cases, and California, 1,051 cases.

In comparison with many other serious diseases the total number of animals or human beings infected with rabies is small indeed. However, the entire story cannot be visualized from statistics alone. The fear, anxiety, suffering, expense and inconvenience attributable to the presence of this disease are factors that cannot be expressed in precise terms. Death from rabies is a needless and horrible tragedy.

The rabies problem in Chicago in 1928 was especially acute and of sufficient interest to be briefly recounted here. In that year 7,813 persons were bitten by dogs suspected of being rabid. This means that a monthly average of 651 people were exposed to the possibility of a horrible death by a disease which can be suppressed and even eradicated by the enforcement of proper measures. To make the picture even more revolting is the fact that, in Chicago, during the first ten months of 1928, fifteen persons died as a result of having been bitten by rabid dogs. This situation had a very significant relation to the fact that, before drastic measures were taken to combat the disease, there were estimated to be 150,000 dogs in the city of Chicago, many of which were ownerless. During 1928, 50,000 of these were caught and destroyed, and as the number of ownerless dogs diminished, there was of course a corresponding reduction in the number of dog bites reported.

The economic importance of suppressing rabies is

well illustrated by the following brief account of an outbreak with which I am familiar. This outbreak of rabies occurred in 1924 in the southern part of Colorado. A herd of about 300 range cattle were maintained in a district where there had been a considerable number of cases of rabies in dogs and coyotes. During the course of a year seventy of the cattle had died of what was considered a mysterious malady until investigation revealed the true nature of the disease. The outbreak was finally suppressed by a systematic campaign against the coyotes of the district, and during a period of several months some 300 of these animals were killed. Laboratory examination of the brains of several of these coyotes demonstrated conclusively the presence of the disease.

There is probably no other disease in which the cooperation of physicians and veterinarians is so important as in the control and eventual eradication of rabies. Frequently all the forces of reaction and ignorance are aligned against what should seem, to reasonable-minded persons, logical and proper measures to combat a disease that is more deadly than the bite of a rattlesnake. Sentimentality, hysteria and just plain "cussedness" frequently unite to frustrate the means necessary to control the problem. One man, for example, who conducts a widely read syndicated health column for newspapers, has even had the effrontery to deny the existence of the disease we recognize as rabies.

Specific recommendations for the control and elimination of rabies in dogs are as follows: 1. The dissemination of knowledge of the disease to the general public. 2. The impounding of all stray and ownerless dogs. 3. The registration or licensing of all dogs whose owners regard them of sufficient value to continue the responsibility of ownership. 4. Compulsory antirabic vaccination of all dogs before a license is issued or registration permitted. 5. Enforcement of a strict quarantine to prevent the movement of dogs from one state to another without a qualifying health certificate attesting the animal's health and previous antirabic vaccination, such a certificate to be issued only in the event that there has been no case of rabies in the immediate vicinity for a previous period of six months. 6. Restriction of all dogs to their owners' premises unless they are on a leash. Strict adherence to these regulatory measures throughout the United States for a period of ninety days would in all probability eliminate rabies.

Another function for which the veterinary profession is responsible is the meat inspection service administrated by the Federal Bureau of Animal Industry of the U. S. Department of Agriculture. Approximately 850 veterinarians are required for this work and appointment to the service is attained through a competitive Civil Service examination. An idea of the magnitude of this task is indicated by the fact that, during 1936, a total of nearly 62,000,000 animals were slaughtered and inspected. Large as this number may seem, it represents only about 65 per cent of the nation's meat supply. The remaining 35 per cent is prepared without the benefit of any inspection whatever, or under city, county, or state inspection which is often inadequate or inefficient owing to lack of a trained personnel and the failure of public health authorities to insist that meat sold locally should have as adequate inspection as that sold interstate. That the Federal meat inspection service is rendered economically is evident from the fact that, if the cost of the entire service were assessed against the number of animals inspected at the time of slaughter, the cost would be about seven and one-half cents per animal. Because of its scope and magnitude our Federal meat inspection service is unique among the meat inspection services of the world. It is a service in hygiene and sanitation of incalculable worth to the nation.

In closing, I think it can be said very definitely that the veterinary profession recognizes the fact that an efficient public health service, under the direction of capable and properly trained physicians, constitutes probably the most valuable single institution ever designed for the welfare of the people. For service in the realm of sanitation to insure a safe and wholesome food supply and in the control of diseases that are transmissible to human beings, the veterinary profession offers a trained personnel that is eager to assume a definite responsibility in advancing the program of public health.

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A NEW OPERATION FOR THE TREATMENT OF SALPINGITIS.*

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Tubal resection as a treatment for salpingitis was first advocated by Falk in 1936. The purpose of this is to prevent the recurrence of inflammatory attacks in the tube by a procedure which is analogous to the prevention of epididymitis by resection of the vas. The principle involved in both procedures is the cutting off of the avenues of infection from the original focus. Modern methods for treating salpingitis conservatively are curing many cases which formerly came to surgery. In fact, in nearly every case the inflammatory process can be made to subside and it is only for the relief of symptoms that the patient comes to operation. Very often these symptoms are not in proportion to the amount of pathology present, making it rather difficult at times, after the abdomen is opened, to determine from which of the abnormalities observed the discomfort is arising.

One finding is rather common—that the uterus, tubes and ovaries are buried deep in the pelvis from which they have to be extricated. That this in itself can be the cause of symptoms is entirely reasonable.

Falk, after studying a large series of cases, made the following observations:

"1. When the patient with quiescent pus tubes was adequately treated so as to remove all infection from her genitalia and separated from her consort to prevent reinfection, her tubal infection did not recur.

"2. Reinfection of chronically infected tubes did not occur in patients who had had a hysterectomy. In the literature, it was found that Robinson described hysterectomy as a treatment for pus tubes.

"3. In spite of the known fact that a gonorrheal infection of the tubes is always bilateral, patients were seen repeatedly who had a pus tube on one side and a fairly normal tube on the other. As a result of this observation several of these tubes were removed and examined. It was found that the apparently normal tube was completely obstructed at the uterine cornu, whereas in the pus tube on the other side the connection with the uterine cavity seemed to be maintained.

"4. It has been shown by Simpson and Curtis that gonorrhea of the tube is a self-limited disease and that the organisms in the tube die when the patient's temperature is normal for two weeks. As a result, one might therefore assume that the tube cannot reinfect itself. The infection must come from without.

"5. It was found that those patients on whom a bilateral cornual resection had been performed for sterilization purposes never developed pus tubes."

These observations confirm his opinion that the uterus is the avenue of infection and if that avenue can be interrupted, reinfection of the tubes will not occur. Probably the cause of reinfection is the excitation of foci around the genitalia by sex and douche trauma. It is conceivable that if these foci could be entirely eradicated, salpingitis in a patient would subside of its own accord and nothing further would have to be done. Various methods of treatment of these foci have been attempted with only a moderate degree of success. Another difficulty is that patients, as a rule, do not cooperate well, especially with regard to sex trauma, and while this cooperation may easily be obtained in the more intelligent, it is almost impossible with those of the lower mental and economic strata.

A necessary concomitant of tubal resection is sterilization, which is an undesirable feature of this procedure. It is true that many patients who have had salpingitis and have been cured, eventually become pregnant because the tubes do not become occluded. This is not the rule, however, and in my experience the majority of these patients remain sterile. Since sterility will be the result of this procedure, it must be considered as one of two evils, the other being the discomfort, inability to work and the

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symptoms for which the patient comes to the surgeon. Hence, the choice must be made between the two, and the lesser evil accepted.

What is to be done at operation depends, of course, upon what is found. Encapsulated abscesses should be removed if possible, but organs should not be removed merely because they appear inflamed. One does not excise the whole area of skin involving a furuncle in order to cure it. A case in point may be cited:

"C.W., negro, aged twenty-four, complained of severe, incapacitating abdominal discomfort and metrorrhagia. Her history extended over a period of three years, during which she gradually grew worse, and, while the symptoms would subside after using hot douches, lying in bed and especially after a course of Elliott treatment, they would recur with increased severity. Examination was unimportant, except for tenderness over the whole inguinal region and in the pelvis. Pelvic examination revealed that the organs were practically in one mass and the uterus was firmly fixed. The temperature did not rise above 99° for a week prior to operation. At operation, the pelvic organs appeared as one mass in which intestines were entangled to such an extent that the removal of the pathology would have been extremely hazardous. With much difficulty the fundus of the uterus was discovered and the medial ends of the tubes uncovered. These were cut as close to the uterus as possible and the ends, ligated, but the lateral ends were not sutured to the uterus because they were so fixed that they could not be moved. The abdomen was then closed and the patient made an uneventful recovery. Her symptoms disappeared and within a month after operation she had gained six pounds, the adnexal regions were noticeably less dense than they had previously been and the metrorrhagia had disappeared. Three months after operation she had gained twenty pounds, had been working for four weeks and had had no recurrence of symptoms. At eight months after operation, her only complaint was that she had some abdominal discomfort between periods, which lasted a day or so. This I interpreted as ovulation occurring in adhesions which did not allow the free escape of the fluid."

Conservatism should be the key-note in pelvic operations for inflammatory conditions of this type and it is obvious that the ovaries should be preserved. Because the ovarian tissue looks bad does not mean that the hormone producing cells necessarily have been destroyed. It may be readily argued that the tubes, when occluded, serve no useful purpose. Yet I feel that they should not be removed, for the following reasons:

1. The removal will interfere with ovarian circulation. While, of course, the main circulation of the ovary comes from the ovarian arteries, a substantial part of it is derived from the uterine also, and it is not always possible to remove the tube without affecting this arterial anastomosis in some way.

2. Removal of the tube alters the tension between the pelvic organs. The ligation of the vessels of the broad ligament and the contracture of scar tissue after the inflammation has subsided may give rise to symptoms. That this can be the cause of symptoms is illustrated by the following case:

"L.S., white, aged twenty-nine, had been operated six years previously for salpingitis. What had been done could not be determined pre-operatively because the hospital in which she had been a patient was at some distance and had been closed. Examination revealed a uterus of normal size and in the normal position, with some tenderness in the right adnexal region. The old midline incision was excised and the abdomen entered without difficulty. Both tubes, the left ovary and the appendix had been removed. The right ovary appeared slightly larger than normal and had a somewhat dense capsule. It seemed to me that the uterine-ovarian ligament was thickened and very tight. This was divided, allowing the ovary to be suspended only by the ovarian ligament. I left it this way in order to determine whether this tension could be the cause of the symptoms. It has now been six months after operation, of which she has been at work four, and there has been no recurrence of symptoms."

The operation of tubal resection is, of course, very simple. The procedure which I use varies in some of its details from that of Falk, but is essentially the same principle. It is of especial importance to deliver the uterus and the adnexae from the deep pelvis for the reasons previously stated. The suspension of the uterus should now be done. If the round ligaments are too short for a Baldy-Webster suspension, a continuous suture of silk may be run along them and tied. A Baldy-Webster suspension is preferable if this can be accomplished easily. The tubes are then divided between clamps, as close to the uterus as possible, as I believe cornual resection is unneces-

sary. The lateral end of the cut tube is then sutured to the ventral and not the posterior surface of the uterus. This has for its purpose the further lifting of the tube and the ovary out of the pelvic cavity. If the tube is unusually long, an additional suture is taken in the tube to attach it to the fundus of the uterus.

Thirty-one cases have been done, of which twenty-seven are completely relieved of their symptoms. Three are moderately improved and their discomfort is not severe enough to warrant reoperation. One, a negro, aged thirty-four, was reoperated seven months after her original operation because of recurrence of symptoms. This was the second case in the series. At operation, reinfection of the tubes had not occurred but it was found that the suspension was inadequate and the fundus had descended into the cul-de-sac.

SUMMARY

The surgery of recurrent salpingitis has been modified greatly in recent years because of the success which attends the modern conservative methods. Comparatively few cases come to operation, and in these the cause of the discomfort is not always obvious. It seems to be due to malposition, associated with chronically inflamed tubes and ovaries adherent to the pelvic peritoneum and intestines by adhesions which are derived from the subsiding inflammatory reaction. It has been the custom, up to this time, to remove such organs, but the removal in a great many cases did not relieve the symptoms. In addition, the removal of ovarian tissue caused so many patients to have emotional upsets and symptoms associated with the nervous system that the remedy was in some instances as incapacitating as the disease.

Falk reported seventy-five patients operated on, of which forty-three were completely asymptomatic and only ten had symptoms which were severe enough to interfere with work. None had to be reoperated for the severity of symptoms.

In dealing with inflammations of the ovary one cannot always predict how much of the hormone function of the ovary will be retained when the inflammatory process has subsided. Therefore, the conservation of whatever remains is important. Resection of the tubes offers a means of preventing the recurrence of inflammatory attacks in the tube as well as disturbances resulting from the removal of the pelvic organs, as it allows the hormone function of the ovary to be restored to whatever degree possible.

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18 Liberty Street.

SIRENOMELUS—CASE REPORT.

CHAS. W. PUTNEY, M.D.,
Staunton, Virginia.

Sirenomelus or sympus is a monster fetus with varying degrees of fusion of the lower extremities resembling a mermaid. The sirenomelus monster, though rare, has attracted a great deal of attention throughout history. In Greek mythology the siren was a symbol of death. Odysseus tied his men to the masts of the ship when passing the island of attractive sirens. Plinus assures us in his natural history that men lived who had only one lower limb by which they were able to walk, jump, and which they used to protect themselves from the rays of the sun when reclining on their backs. He is given the credit of first mentioning this deformity. He called it monocoli. Aristotle does not list it in his fairly extensive catalogue of monstrosities. This shows its relative infrequency. Science, in the sixteenth century, began its research and attempted to allay superstition. The first attempt at an accurate description of a sireniform monster is attributed to Racheus (1542). However, Paré still believed the sirens to

be a peculiar race of people. Sympus is rare in animals, but has been found in a calf. Reported human cases are rare and previous to 1800 the records of such cases are more legendary than authenic. Goeffrey St. Hilaire (1838) attempted a classification of sirenomelian monsters: 1. Symele; 2. Sirenomele; 3. Uromele. Foerster (1861) made a similar classification and used a more descriptive terminology which is now generally accepted in this country and abroad. According to Foerster's classification there are three types: (a) Sympus apus, a variety in which the feet are absent and there is complete fusion of the lower extremities. (b) Sympus dipus, a form in which both feet are present, but the femora are fused, and (c) Sympus monopus, a form in which one foot is present, but there are two distinct sets of bones for the lower extremities. The author's case is of the sympus apus type. According to Proshek, sympus apus variety is said to be the most common of the three types of sympus. Sympus dipus is the most infrequent type. Ballantyne in 1897 was able to collect 116 cases from the literature. In 1927 Kampmeier collected fifty more cases, and added his own case; of the seventy-nine cases reviewed by Kampmeier there were only five cases of twins and they were all males. The case here reported was also a twin, and its twin was a male. Since 1927 I have been able to find in the literature fourteen additional cases besides the one herewith reported. One of these cases found in the literature was also a twin.

Etiology:—The ancients thought the unfortunate mother had been too familiar with a merman or thought it was a product of the supernatural. William Harvey in the middle of the seventeenth century was the first to attempt an explanation of monsters on an embryological basis. Haller, a hundred years later, began anatomical research which caused a real science of teratology to emerge from mythology.

Many causal theories have been advanced, but those advanced by Weigert, Bolk, and Dareste attract the greatest attention. Weigert (1886) asserts that the single umbilical artery (a most common characteristic of sympus) arising directly from the aorta before its division is the persistent omphalomesenteric artery. This single artery is present in almost but not all cases of sympus and is only found in these monstrosities. He believes the other malformations are only secondary to the malnutrition as a result of impaired blood supply. Bolk, however, attributes the malformation to a defective germ-plasm of either mother or father or both, which affects the arrest of the divisional development of the posterior segments in the early embryonic life, causing fusion of the corresponding structures in the midline posteriorly. Bolk sees the causal origin in changes in the germ-plasm, whereas Weigert's theory is based upon impaired blood supply to the parts. Dareste (1891) advanced the theory that an abnormal narrowing of the caudal amniotic fold producing compression of the contained embryo is responsible for this deformity of the posterior region of the body.

Labangle and Regnier, Ballantyne, and Kuliga found no evidence of an allantois or urachus in the specimen which they examined and came to the conclusion that the yolk-sac took on the function of the allantois, and the malformation resulted from this change. Kampmeier found an allantois in his specimen and disproved that it was always absent. He believes that the persistence of the omphalomesenteric artery indicates a participation of the yolk-sac in the establishment of the placenta.

No entirely satisfactory explanation has as yet been furnished regarding its causation, and often there is no history of malformation in the family indicating a hereditary tendency.

The increasing knowledge of comparative embryonical morphology together with recent experimental researches point to two causes of these aberrant forms, i.e.: (1) Defects in the germ cells supplied by either or both parents; (2) Abnormal conditions influencing the development of the normal ova.

Characteristics:—Usually each specimen has certain deformities that are not characteristic of sirenomelus, i.e., malformations of the head, chest, upper extremities, harelip, etc., but there are certain abnormalities that are usually present in each type.

Hirst and Piersol (Human Monstrosities, p. 87) state that: "The symeli are characterized by an imperfect development of the pelvis and lower extremities; by an *atresia ani et urethrae,* by more or less intimate fusion of the lower extremities and by a twisting of the lower limb so that the femora are united by the internal condyles, the legs by the fibulae and the feet, if they exist, by the fibular edges and little toes so that the heels look forward." According to St. Hilaire, the limbs are united by what in the normal position is their lateral

borders, i.e., the lateral aspect of the thighs, the fibula side of the leg, and the outer sole of the foot, with the necessary result that the flexor surface of the extremity is directed forward, as is also the sole of the foot. The toes are pointing backward, with the great toes on the outside of the misshaped foot. There are in addition numerous visceral defects which are more or less constantly found. The terminal and pelvic portion of the digestive and urogenital tract suffer most severely. *Atresia ani et recti* is almost invariably present, and there is frequently occlusion of the gut higher up and often terminates at the cecum in a blind sac or in the urinary bladder, suggesting a persistence of the cloacal stage of development. The external genitalia are practically never developed. The generative glands can often be recognized, but usually in an atypical location. The remaining reproductive organs are always malformed or absent. The kidneys, if present, are usually malformed and often misplaced. They frequently have retention cysts, especially if the ureters are absent. The bladder is rudimentary or absent.

Perhaps the most constant anomaly in sympus is the presence of only two vessels in the umbilical cord, one vein and one artery. The artery is not one of the usual umbilical arteries, but is an omphalomesenteric artery, i.e., an artery of the yolk-sac, taking its origin directly from the abdominal aorta or it may appear as a continuation of the superior mesenteric artery. The hypogastric or the internal iliac arteries from which the umbilical arteries normally arise are always very small or absent.

Sympus apus (sirenomele) is the severest type of sirenomelus. The musculature is most defective and often absent below the knee. Many muscles are recognized, if at all, only by their nerve supply. The sacral nerves are all rudimentary or absent and even the lumbar plexus is imperfectly formed. Extensive malformations of the spine are frequently found more marked in the lumbar and sacral region, and usually the pelvis is imperfectly attached to the lumbar spine.

CASE REPORT

Mrs. N. A. S., age twenty-six, reported to my office on August 8, 1932, for prenatal care. She was found to be a well-nourished, white, adult female, showing some stigma of degeneration with no physical deformities. Her heart and lungs were normal and the other physical findings were negative. She was in good health and doing her own house work.

She denied venereal diseases. She had had the usual diseases of childhood and typhoid fever. Her appendix had been removed three years before; otherwise she had been in good health.

There was nothing of interest in the family history, except this patient had one brother with a club foot.

This was her third pregnancy. Her pelvic measurements were normal and she had experienced very little difficulty in her previous deliveries. The first was an easy delivery at term, but a stillbirth, although she had felt movements until labor had begun; she stated that the fetus appeared to be well formed. The second birth was more difficult, but spontaneous at term. The child had a harelip and a cleft palate; otherwise it was perfectly developed. She had had no miscarriages, and her convalescences from deliveries were normal.

Photograph of Monster.

Her periods are always irregular, from three weeks to two months, but not painful. The first day of her last period was on April 9. Life was felt August 25. During the next few months she developed rapidly in size and complained of slight dizziness at times and she developed some edema, although her blood pressure and urine remained normal, and her blood Wassermann was negative. Twins were suspected, but this was not confirmed by X-ray, and it was thought best to wait until nearer term.

November 9, about 10 A. M., she began with abdominal discomfort, but was not having active pains. She began active labor about midnight and delivered twins spontaneously at 10:30 A. M., following immediately after the membranes ruptured. There was a normal amount of amniotic fluid. A seven months premature, live, male baby, without deformities, was

delivered. She delivered, with the next few pains, the dead fetus here reported. There was a normal amount of blood lost. There were two cords, two normal placentae attached, and one amniotic sac. The mother had an uneventful recovery and was well and healthy when last seen.

This monster was prematurely small, but all features were well developed and there were no external deformities above the umbilicus. The genital region and anal regions were covered by integument, and there was no rudimentary evidence of genitals or anus The one lower extremity was partially ankylosed at the hip joint and the rudimentary foot appeared to be turned backward with the heel forward. The measurements are as follows:

Measurements	Centimeters
Crown-heel	37.2
Crown-romp	27.4
Spine	16.8
Upper extremities	16.3
Lower extremity	10.8
Upper extremities:	
arm	6.5
forearm	5.4
hand	4.4
Intercristal	6.4
Biparietal	8.4
Occipito-frontal diameter	10.4
Anterior-posterior diameter at level of nipple	8.2

It is to be regretted that an autopsy report is not herewith submitted, but when it was presented to the pathologist at the Medical College of Virginia for his study Dr. Joseph Bear of the Obstetrical Department saw the specimen and convinced me that it would be of more value as a museum specimen for teaching students than to dissect it to determine other internal deformities. A rather large number have already been dissected in search of a possible cause, but no definite cause for this deformity has been found. It is now in the museum at the Medical College of Virginia for teaching purposes.

21 North Market Street.

ANILIN DYE DERMATO-CONJUNCTIVITIS—REPORT OF A CASE.

W. F. BRYCE, M.D.,
Richmond, Virginia.

As far back as 1887 we have known that anilin dyes are capable of causing severe kerato-conjunctivitis. One of the first cases reported was that of a painter who used anilin pigments in his work. Since that time numerous cases have been reported in dye factory workers. It seems that the reaction is provoked more often by the basic form of the dyes, rather than by the neutral or acid form of the dyes. The mechanism of the action of the dyes seems to be due to the fact that many of them are protoplasmic poisons.

The manifestations of the irritant reactions caused by the anilin dyes range from mild to very severe episodes. The mild reactions are merely an increased hyperemia of the part involved, while the more severe reactions will exhibit marked swelling of the lids and the surrounding tissues, and marked chemosis of the palpebral and ocular conjunctiva. The cornea may become infiltrated, and finally may develop into some form of corneal dystrophy, or into actual ulceration which may lead to the loss of the eyes. An anterior uveitis is also seen in the more severe cases.

There are several common sources of anilin dye dermato-conjunctivitis; one form, seen fairly often, is in those persons in whom shavings from indelible pencils have gained access to the conjunctival sac either by accident, or by being willfully placed there, the latter being the case in some malingerers who wish to excite sympathy or to escape some unpleasant duty. The second form, one that is seen much too often, is observed after the use of eyebrow and eyelash dye. Women in their quest for added lure are willing to go to all extremes to reach this end, and once they have their mind made up to have this litle act of beautification carried out, even the possibility of serious damage to their eyes is no barrier.

Greenbaum,[1] in 1933, reported a case of dermato-conjunctivitis due to the use of Lash-Lure on the eyelashes. Harner,[2] in 1933, reported three cases of dermato-ophthalmitis due to the eyelash dye Lash-Lure. In his cases, the first showed some superficial corneal infiltration, but eventually recovered without any permanent disability; the second case developed corneal ulcers on each cornea, and had as

an end picture fairly large leukomas on each eye; the third case rcovered without permanent disability. Bourbon,[3] in 1933, reported a case with marked palpebral swelling and conjunctival chemosis after the use of dye on the eyelashes; here, too, no permanent ill effects were noted. Jamieson,[4] in 1933, reported a case of eyelash dye dermatitis following the use of Lash-Lure. In this incidence, recovery was attained after a prolonged time. McCally, Farmer, and Loomis,[5] in 1933, reported a case of bilateral corneal ulceration following the use of Lash-Lure. In this case the outcome was extremely poor, only light perception being left in either eye. Rodin,[6] in 1934, reported a case in which there was a severe bilateral reaction of the eyes, with some erosion of the cornea, followng the dyeing of the eyelashes and eyebrows.

REPORT OF A CASE

A white woman, age thirty years, first seen on April 17, 1938, with the history of having had her eyebrows and eyelashes dyed the day before with the preparation known as Lash-Lure. Two hours after the application of the dye, she noticed a burning and reddening of the eyes. The lids began to swell simultaneously. When first seen the lids of both eyes were markedly edematous, as were the surrounding tissues. There were many minute watery red elevations on the somewhat flushed areas. The palpebral and ocular conjunctivae were markedly chemotic and moderately reddened. There was a moderate amount of a muco-purulent discharge. The corneas were clear; the anterior chambers were normal. The irises were normal; the pupils were equal, and reacted actively to exposures to darkness and light. The fundi were normal, with the exception of a fairly marked hyperemia of each disk. This hyperemia became less as the external reaction subsided. There was rather marked photophobia, and the patient was unable to get about without aid. When seen on the following day, April 18, the condition had progressed, and the patient was hospitalized. Physical examination revealed no pathological findings of importance, other than that found in the eyes. The hematology was: R.B.C. 3,300,000; W.B.C. 9,300. Differential: Neutrophiles 70 per cent; lymphocytes 29 per cent; eosinophiles 1 per cent. Hemoglobin 63 per cent (Dare). Wassermann negative. Urinalysis was normal. Conjunctival smears taken daily revealed numerous leukocytes, but no eosinophiles, and no organisms were found. The patient's past history revealed no facts that might lead one to think of an "allergic background", with the exception of a mild dermato-conjunctivitis two years ago, after the application of Lash-Lure to the eyelashes.

Management of this case was as follows: When first seen the patient was put on cold boric acid compresses (one teaspoon of boric acid to a pint of water) to the eyes, and the instillation of 5 per cent boric acid ointment every four hours. The second day the swelling and redness was much worse, the lashes were clipped at their bases, the scissors being well covered with vaseline, so as to keep any of the lashes from falling into the conjunctival sac. The patient at this time was hospitalized. The cold boric acid compresses were continued, and the boric acid ointment was replaced by the use of a solution of boric acid—grains four to one ounce of sterile mineral oil. This solution was instilled into each conjunctival sac frequently. The patient was kept in a darkened room. From the time the eyelashes were clipped the patient improved, and was able to return to work nine days after the application of the dye.

The dye Lash-Lure, according to investigations,[7] contains an anilin derivative, but does not contain paraphenylenediamine, as once thought. In these cases a factor of specific sensitivity seems to exist, for the dye is applied to many lashes without ill results. However, the occurrence of reported cases seems to be enough to warrant against the use of this artificial beautifying agent, though, as we all know, women will never give up this procedure. In view of the obstinate resistance, it seems that a skin sensitization test should be carried out in all cases contemplating such decoration, and this procedure should not be in the hands of beauticians.

In cases in which anilin dyes reach the conjunctival sac in large quantities, many solutions have been urged as flushing agents, namely hydrogen peroxide, weak alcoholic solutions, and 5 per cent to 10 per cent tannic acid solutions. However, probably just as efficient and much less irritating is the copious use of water as the flushing agent, and this should be followed by the frequent instillation into the conjunctival sac of the above mentioned solution of mineral oil and boric acid. Our chief duty is to protect the cornea, and, although cold compresses give much relief, care must be taken in their use, for the nutrition of the cornea might suffer from the con-

stricting action on the vessels that the cold exerts, and ulceration might be more liable to develop.

SUMMARY

1. Review of reported cases of dermato-conjunctivitis following the use of eyelash dyes.

2. Report of a case of dermato-conjunctivitis following the application of Lash-Lure to the eyebrows and eyelashes.

3. Management of case is outlined.

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Medical Arts Building.

PRESIDENTIAL ADDRESS.*

PHILIP S. SMITH, M.D., F.A.C.P.,
Abingdon, Virginia.

I have no intention, or desire, to introduce a topic that will result in expressions of political, social or economic differences of opinion that divide not only our profession but Americans at large. Whether one believes that the upheaval in our socio-political economy is a product of certain policies of our present Federal administration or is inevitable as a part of a world-wide movement—such discussions *per se* have no place in our considerations as a medical society.

However, since these problems have already involved every phase of our national life, the practice of medicine included, it seems pertinent and necessary to ask ourselves not only what is our individual attitude toward them but that of organized medicine as well.

You doubtless know of a recent meeting in Washington of the National Health Conference, attended by representatives of business men, the professions, labor groups, farmers, the American Medical Association, and a group of physicians speaking as individuals. This representative assembly convened to hear the report of the Inter-Departmental Committee appointed by the President. The transactions, though not yet published *in toto*, are thought-provoking. Other meetings of physicians and laymen, singly and jointly, have been devoted to discussions of the same general theme, viz., "Is medicine as practiced today meeting the demands made upon it by those not able to finance the costs of illness either in the home or hospital?" An important and influential group of doctors has indicated their belief that such demands are not being met by organized medicine. The American Medical Association has discouraged previously any movement to alter the present status, but recently inaugurated a thoroughgoing survey conducted by county and district societies.

I am confident that those who have given thought to the matter will agree unanimously that the physicians of the United States have a challenge presented to them that cannot be ignored by refusing to recognize it. Doubtless each of us has his opinion, either partially or wholly formulated, but to only a few has the opportunity been given for a public expression of that opinion. Those who have not been provided with sufficient data to enable them to arrive at an intelligent conclusion cannot excuse themselves from taking an active interest in the questions and policies at issue; for it seems axiomatic that unless the rank and file of doctors express themselves clearly and forcibly, either the few who direct the affairs and policies of the American Medical Association, or, more unfortunately still, certain individuals or agencies in Washington will undertake it for them.

It is recognized that the foregoing statements are matters of common knowledge and discussion. There is only one phase of the matter I wish to stress. It is the fact that the Southwestern Vir-

*Address of the President before the Southwestern Virginia Medical Society, at Blacksburg, Va., September 22, 1938.

ginia Medical Society, representing a large section of the State and constituting one of the largest component units of the Medical Society of Virginia has not recognized formally a problem that so vitally concerns the individual physician and organized medicine. As already stated, I have no intention of asking you at this time for an expression of opinion. The matter requires adequate consideration. But, as your retiring President, free from political considerations, I should feel delinquent in my duty if I did not express my strong conviction that each and every component unit of our State Society should, at a suitable time and after mature deliberation, convey to the State Society an expression of opinion. This would enable the parent organization to adopt resolutions reflecting a representative and convincing expression of the Virginia physicians in a manner that has not been possible to date.

I am aware of the fact that the subject was introduced for discussion in the House of Delegates of the American Medical Association at the San Francisco meeting in June. That body deferred action until the completion of its nation-wide survey of medical conditions and needs. As this is written a called meeting of the House of Delegates of the A.M.A. is being held in Chicago to discuss certain phases of the problem.* It is admitted that a survey conducted by the American Medical Association (though others have recently been made by government agencies) should prove most informative and helpful in obtaining data relative to existing facts and needs; but it is believed that the most reliable expression of opinion possible as to what should be done can be obtained by each State society, having first determined the views of all component units, adopting resolutions that reflect accurately the sentiments of a majority of the physicians of that state. A representative legislative body such as the House of Delegates of the A.M.A. should have its delegates advised by the doctors who elect them of the majority opinion in a matter so unprecedented and important to the present and future practice of medicine.

Since this Society will have no opportunity before the meeting of the State Society to formulate such resolutions, I hope that our delegates to the Danville meeting will read the address of Miss Josephine Roche, Chairman of the Inter-Departmental Committee, in the *J.A.M.A.*, July 2, 1938, the report of the Committee on Medical Economics to the State Society published in the VIRGINIA MEDICAL MONTHLY, September, 1938, and also other data available; that our delegates will give serious thought to the matter in advance of the meeting of the State Society, enter into the discussions of the House of Delegates, and report through a committee their observations and recommendations to our membership at the Spring meeting of the Society.

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*NOTE.—The action of the A.M.A. delegates in its recent-called meeting can be interpreted as indicating either that it is felt that adequate medical care of the indigent is not now being provided or else a conviction that such action is needed to forestall a more radical policy of governmental agencies. By no means have all of the problems been solved. The responsibility of our delegates to the State Society meeting is not materially affected by the action of the A.M.A. delegates.

Johnston Memorial Clinic.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.
President-Elect—MRS. HENRY A. LATANE, Alexandria.
Corresponding Secretary—MRS. PAUL PEARSON, Aylett.
Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

Auxiliary to Mid-Tidewater Association.

The regular meeting of the Woman's Auxiliary to Mid-Tidewater Medical Association met at the home of Mrs. E. L. W. Ferry, Miller's Tavern, with Mrs. A. W. Lewis, presiding.

The annual report was read, after which Mrs. William Gwathmey, chairman of the nominating committee, presented her slate, which was accepted and the following officers elected:

President—Mrs. Hawes Campbell.
1st Vice-President—Mrs. Horace Hoskins.
2nd Vice-President—Mrs. M. H. Harris.
Historian—Mrs. Horace Hoskins.
Chairman of Program and *Hygeia*—Mrs. W. S. Cox.

Chairman of Membership—Mrs. R. D. Bates.

The meeting was turned over to the new president, Mrs. Campbell, who gave an interesting report of the State Meeting in Danville. She also stated that one of her objectives for the year would be a membership drive.

A delicious dinner was served, sponsored by the local doctors.

The afternoon session was turned over to our Program Chairman, Mrs. Cox, who distributed interesting articles to be read on various subjects pertaining to health.

BLANCHE V. LEWIS,
(MRS. A. W. LEWIS).

Norfolk Auxiliary.

The Woman's Auxiliary to the Norfolk County Medical Society, at a meeting November 14, made plans for its annual card party to be held on the afternoon of January 31. The Auxiliary arranges this party each year to raise money to maintain a patient at the Victory Memorial Hospital for the tubercular.

The Auxiliary also discussed plans for a luncheon to be held at the next meeting on January 11. A layette shower will be given in connection with the luncheon meeting. Every year the Auxiliary provides the King's Daughters Clinic with several layettes.

Mr. J. E. Healy made an address on behalf of the Red Cross Roll Call.

Mrs. Millard Savage, president, presided.

(MRS. BROCH D.) EUGENIA H. JONES,
Chairman, Press and Publicity.

The James City-Williamsburg Medical Auxiliary

Met with Mrs. A. M. Sneed, of Toano, for its October meeting, with eleven members present. The President, Mrs. T. B. Henderson, presided at the meeting.

The election of new officers took place at this time and the incoming officers are: Mrs. Fred Person, president; Mrs. J. M. Henderson, vice-president; Mrs. E. B. Holderby, secretary; and Mrs. B. I. Bell, treasurer.

Old and new business was discussed. A motion was made to provide paper cups and stand for the Matthew Whaley School in Williamsburg.

Our President brought the beautiful silver trophy for the rest of us to see. It was greatly admired and, of course, very much appreciated. The trophy was won for making the greatest gain in membership. Five new members were added last year, making a total of fifteen.

Our hostess gave us a lovely vocal selection, after which the meeting adjourned to be followed by a delightful social hour.

MABEL HENDERSON,
(MRS. L. V. HENDERSON).

Petersburg Medical Auxiliary.

The Medical Auxiliary of Petersburg has completed its organization for the year, with Mrs. Allen Barker succeeding Mrs. Fletcher J. Wright, Sr., as president. Other officers are: Mrs. W. B. McIlwaine, president-elect; Mrs. Clabe W. Lynn, vice-president; Mrs. C. S. Dodd, recording secretary; Mrs. H. M. Snead, treasurer, and Mrs. George Reese, historian. Committee chairmen are: Mrs. E. L. McGill, membership; Mrs. Meade Edmunds, public relations; Mrs. Herbert C. Jones, program; Mrs. Philip Jacobson, *Hygeia;* and Mrs. F. J. Wright, publicity.

Plans for the annual hospital linen shower were discussed and it was decided to hold the event in February in order that contributing churches and others might take advantage of the January linen sales.

The Auxiliary decided to hold regular meetings in the homes of the members.

Richmond Academy of Medicine.

At a recent meeting of the Auxiliary to the Richmond Academy of Medicine, the following officers were elected for 1939:

President—Mrs. James K. Hall.
President-elect—Mrs. L. O. Snead.
Vice-President—Mrs. H. B. Haag.
Treasurer—Mrs. J. O. Fitzgerald.
Corresponding Secretary—Mrs. A. I. Dodson.
Recording Secretary—Mrs. Lee Sutton, Jr.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for the

month of November, shows the following cases compared with the same month in 1937.

	1938	*1937*
Typhoid and Paratyphoid Fever	12	30
Diphtheria	282	210
Scarlet Fever	198	165
Measles	73	222
Meningitis	4	19
Poliomyelitis	2	3
Rocky Mountain Spotted Fever	1	1
Typhus Fever	1	3
Undulant Fever	1	3
Tularemia	11	4

Progress in the Control of Venereal Diseases in Virginia

The activities of the State Health Department's Division of Venereal Disease Control since its organization in December, 1936 and up to July 1, 1938 has largely been concerned with a study of the extent of the venereal disease problem in Virginia; the facilities available to handle the problem; the development of a control program; and the prosecution of such portions of the program as was consistent with the amount of funds available.

The General Assembly of Virginia, in session January and February, 1938, appropriated $11,915 for each year of the biennium. An additional amount of $2,900 was allotted to the Division of Venereal Disease Control from departmental funds in order to secure a total of $14,815, which was the sum necessary to match an allotment of $58,983 made by the U. S. Public Health Service to Virginia. This amount, $73,789, was thereby made available July 1, 1938 for the control of venereal diseases.

Treatment facilities providing medical attention for indigent patients with venereal diseases gradually have been expanded. On January 1, 1937 there were nineteen venereal disease clinics. Since that time forty-six clinics have been added, making a total of sixty-five.

In the first quarter of 1938 (January, February, March), a total of 58,864 visits were made by patients to these clinics. During that period 47,625 treatments for syphilis and 1,680 treatments for gonorrhea were administered. In the second quarter (April, May, June), 62,823 patient visits were made to the clinics. During that period 53,055 treatments for syphilis and 1,590 treatments for gonorrhea were administered. In the third quarter (July, August, September), 66,901 patient visits were made to the clinics. During those months 55,164 treatments for syphilis and 1,758 treatments for gonorrhea were given.

On October 10, 1938, free antisyphilitic drugs were made available to hospitals, clinics and private physicians for the treatment of all cases of syphilis regardless of the patient's financial status. The only requirement necessary to obtain the drugs is a report of the case to the State Department of Health.

During October, 8,440 grams of the various arsenicals were distributed. This amount represents the equivalent of 29,870 doses. A total of 41,820 cubic centimeters of bismuth subsalicylate in oil was furnished the profession, representing a distribution of 20,900 doses. Triple distilled water also is supplied without charge. During this same period 18,-150 ampules, containing 10 c.c. each, were furnished.

The medical profession has cooperated in reporting the syphilis cases it has under treatment. There has been a marked increase in the reporting of syphilis during the first six months of 1938. In this period 6,582 cases were reported. During the year 1937, 6,836 cases of syphilis were reported. This represents an increase of 100 per cent in reporting, and is of very definite value in helping to evaluate the extent of Virginia's venereal disease problem.

A new system of reporting venereal diseases was inaugurated in counties and cities served by full-time health departments on January 1, 1938, and in counties without health departments on September 1, 1938.

The program for the control of venereal diseases in Virginia is making definite, but conservative progress, and such additional features of the projected control program as are consistent with the available funds are being developed.

New Mobile X-ray Unit

Because of an increasing demand for X-ray service in rural areas, the State Health Department recently purchased a new mobile X-ray unit. The truck provides facilities for taking chest pictures, developing films, and making the information immediately available to local physicians who, in the first instance, refer the patients to the clinic. This new truck also is equipped with a fluoroscope. This service will be of considerable help to the thirty-two physicians now operating local pneumothorax stations throughout the State.

With this additional mobile equipment, the State has been divided into an eastern and a western dis-

trict. The truck in the western section is being operated by Dr. Charles Scott; the clinic personnel consisting of a technician, nurse, and clerk. The one in the eastern section is under the supervision of Dr. William Randolph, similarly staffed. This improved service will enable the State Health Department to bring an expert diagnostic and consultative service to all sections of the Commonwealth.

The new unit fills a long-felt need. It should be instrumental in further lowering the tuberculosis death rate in Virginia by making early diagnosis available to all sections and both races.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Gilliland Laboratories, Inc.
- Antipneumococcic Serum, Refined and Concentrated, Type I.
- Antipneumococcic Serum, Refined and Concentrated, Type II.
- Antipneumococcic Serum, Refined and Concentrated, Types I and II.

Chas. C. Haskell Co., Inc.
- Whole Leaf Tablets Digitalis "Haskell", 1½ grains.

Eli Lilly & Co.
- Elixir Amytal, 2 grains per ounce.
- Elixir Amytal, 4 grains per ounce.

S.M.A. Corporation.
- SMAco Nicotinic Acid 50 mg. tablets.
- SMAco Nicotinic Acid 25 mg. tablets.

Propaganda for Reform

Colloidal Sulfur in the Treatment of Chronic Arthritis.—The Council on Pharmacy and Chemistry has reviewed the literature concerning the use of colloidal sulfur in the treatment of arthritis, and reports that sulfur may have some therapeutic value in affording temporary symptomatic relief in some forms of arthritis, but the literature does not afford evidence concerning the type of cases in which it may be useful. It often induces fever (and other symptoms) but it is not known whether the fever will be useful or harmful in a given case. There is an almost total lack of knowledge concerning the contraindications. The optimum dose has not been determined. It is unsuited for experimental use except in institutions, or under other conditions in which its effects may be followed intelligently and accurately for prolonged periods. It would seem to be of great significance that not one of the leading arthritis clinics of the United States has adopted the use of sulfur in the treatment of arthritis, so far as can be determined. The Council voted to accept no form of sulfur for the treatment of arthritis until satisfactory evidence of its usefulness is available. (*J. A. M. A.*, October 29, 1938, p. 1657.)

Book Announcements

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Bulloch, W.—The history of bacteriology.
Crane & Patterson—Guide to the literature of chemistry.
Dill, D. B.—Life, heat and altitude.
Doe, J.—A bibliography of the works of Ambroise Pare.
Dubois—Basal metabolism in health and disease.
Economo, L.—Baron Constantin von Economo, his life and work.
Eulenburg-Wiener, R. von—Fearfully and wonderfully made.
Fassett & McGary—Hayfever plants of the Middle West.
Ferrio, L.—Terminologia medica.
Fulop-Miller, R.—Triumph over pain.
Gilbert, M. S.—Biography of the unborn.
Guttmann, W.—Medizinische Terminologie.
Healy, W.—Personality in formation and action.
Hogben, L.—Science for the citizen.
Hutchison & Hunter—Clinical methods.
Imms, A. D.—Recent advances in entomology.
Jensen, H.—Insulin.
Lederer, F. L.—Diseases of the ear, nose and throat.
Levine, S. A.—Clinical heart disease.
McBride, E. D.—Crippled children.
McCrady, E., Jr.—The embryology of the opossum.
Nixon, J. A.—Textbook of nutrition.
Oparin, A. T.—The origin of life.
Peter, L. C.—The principles and practice of perimetry.
Reighard, J. & Jennings, H. S.—Anatomy of the cat.
Savill, A.—The hair and scalp.
Spann, M.—Interlinear German reader.
Traquair, H. M.—An introduction to clinical perimetry.

Synopsis of Clinical Laboratory Methods. By W. E. BRAY, B. A., M. D., Professor of Clinical Pathology, University of Virginia; Director of Clinical Laboratories, University of Virginia Hospitals. Second Edition. St. Louis. The C. V. Mosby Company. 1938. 12mo of 408 pages. Fifty-one Text Illustrations and Seventeen Color Plates. Leatherette. Price, $4.50.

This book is reviewed editorially in this issue.

Doctor Bradley Remembers. By FRANCIS BRETT YOUNG. Reynal and Hitchcock. New York. 1928. Octavo of 522 pages. Cloth. Price, $2.75.

This book is reviewed editorially in this issue.

Virginia Medical Monthly

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AGNES V. EDWARDS, Richmond, *Business Manager*

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WYNDHAM B. BLANTON, M. D., Richmond, *Chairman*
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VOLUME 66 JANUARY, 1939 No. 1

Editorial

Doctor Bradley Remembers.

Doctor Bradley Remembers (Reynal & Hitchcock, Inc.) is a long book, a sad book, and an important book for all who would understand the lives of the vast majority of medical men since it makes plain the toil that is exacted of them, the motives that actuate them, the ethics that control them, and the rewards that come to them. It is an English book, written by an Englishman and portraying an English *locale,* but there is little in it which might not have happened anywhere in America.

The title suggests the plan of the book and its somewhat gentle tone. This is the story of a doctor's life as he himself sees it in retrospect when his fires are low, when he has accepted all that fate has brought him, "knowing well he had performed as much as was in him." Only now and then does the action of the book assume the dramatic quality of immediacy and then only because the scene by reason of its importance has been able to hold for the doctor its electrical quality all through the years.

The book is significant from many points of view. It is a study of three successive generations and to this extent is a study of inherited mental and physical characteristics and environmental influences: the turbulent lower class father and the better born but temperamental mother in poverty produce a proud and sensitive son, driven by the ghosts of childhood unhappiness to strive lonely and unaided for his living and success; in turn, he and his leisure class wife, gifted with talent but with limited intellectual endowment, produce the "difficult" son who, coddled and indulged, carries in his own unstable nervous and mental make-up the seeds of his future self destruction. The pattern of the first generation's paternal domination and maternal protection is repeated in the second. The book is thus a contribution to the literature of the mother-son relationship and of the father-son relationship. It offers no advice as to how such untoward happenings as are recorded may be avoided save by an implication that self control in all human relations and a dignity that refuses to domineer over the personality and career of another makes for happiness and health.

The book is also a history of the Nineteenth Century's developing industrialism and its concomitant social revolution. It is a history of the changing *mores* from provincial Victorianism to post war license. It is a history of the dawn of medical science which means it is a history of medicine as any physician who is seventy-five years old has seen it practiced in his life time. Here are vignettes, some in *aqua fortis,* of various well known and easily recognized types of doctors; the able showmen, the unreconstructed rebels, the political manipulators, the gifted devotees, the big men and the little, the fat and the lean. Here is the small town medical school growing into the metropolitan university, and here is

the familiar anatomical *diener* who doles out "his parts" with unseemly but inspired favoritism and remembers all his old students by name.

All through the book there is the *patois* of the profession, its stenches and hideosities, its drama and drabness, its pathetic limitations and its divine achievements, and above all there is its self sacrificing and self limiting toil. The story is told with the ease one would expect from the author of some twenty-five novels, and with a convincing faithfulness to detail that proclaims him what once he was, a disciple of Aesculapius.

In the doctor's unremitting toil lies the tragedy of the book. It is his work that keeps him from ever really knowing the wife he genuinely loves and the son who becomes his all. More tragic still, it is his work that with merciless irony makes him the cause of their death. To the one he gave unwittingly but nevertheless surely the germs of puerperal sepsis and to the other the first too-blessed relief from recurring pain. "Was ignorance a crime? Should men be punished so heavily for their ignorance?" he asked himself and answered, "Whether they should or should not be punished, they undoubtedly were."

The philosophy of the book is mature and sane if somewhat sombre. The doctor believed that "as a whole life was much of a muchness, that good and evil were generally well balanced, that no man by taking thought, could greatly alter the shape of it, and that, since the end was the same in any case human beings would be better advised to take it as it was."

Indited to the Right Honorable David Lloyd George, O.M., whose Invalidity Insurance Act, according to the dedication "gave greater dignity and security to the General Practitioner in 1913," the book without doubt holds a brief for the socialization of medicine. All through it sickness and hospital insurance for the working classes are shown to operate naturally and helpfully. It is to be noted that voluntary insurance was working well according to the book before compulsory insurance was introduced, and that at the end of the book the Invalidity Insurance Act is still a comparatively new thing. That the Act helps more patients pay their bills is easily granted and that it gives the doctors more pay is easily granted. That it gets the patient better medicine is not contended and it certainly is not proved. Neither is it proved that the Act is a cure for the old medico-economic ill of some doctors having too much to do to do it well, and others having too little to do to live well. Neither is it proved that the Act helps the public to determine which physician offers the best medical aid. As before and as always the public must content itself with whatever is available, good, bad or indifferent.

No one will quarrel with the author's belief that the public is better off in the hands of the devoted humanitarian of the old school than in the hands of an unsympathetic though highly trained modern doctor in pursuit of the almighty dollar—"a dispassionate benevolence is one of the highest gifts of wisdom." And no doctor will quarrel with his belief in the dangers of lay control of the profession. To most doctors it is barely probable that the book will seem an unanswerable plea for more and better postgraduate schools of medicine. Perhaps here again in an effort to better conditions we might run into the temptation of government subsidy and control.

B. M. N.

Dr. Bray's Book.

Synopsis of Clinical Laboratory Methods written by W. E. Bray, M.D., Professor of Clinical Pathology and Director of Clinical Laboratories at the University of Virginia and published by C. V. Mosby Company, has just appeared in a second edition. As the title suggests it is a compendium of laboratory methods useful to the doctor and technician. It is an up to the minute text that wastes no words and yet is clear and accurate. New procedures which are included in the edition are "serum phosphatase determination, titration of staphylococcus antitoxin in the blood serum, Ivy bleeding time, peroxidase-Giemsa staining method, cough plate method for diagnosis of whooping cough, opsonocytophagic test for determining the immunity status in undulant fever, the halo or diffraction method for measuring erythrocytes, vitamin C titration, determination of cyanates in the blood, 'phthalein elimination curve, determination of sulfanilamide in the blood, the differential heterophile agglutination for infectious mononucleosis, test for morphine in the urine, and the optimum dose titration of antigen for the Wassermann test."

A year or more ago we decided to comment editorially upon all books published by Virginia doctors. The decision has involved us in a more ambitious undertaking than ever we dreamed of. Books by Virginia doctors are apparently being turned out at

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a surprising rate. The book under discussion is an example of their real worth.

Medicine and the Muse.

In a day when many mean things are being said about doctors it is a relief to run upon a whole book of encomiastic verse dedicated to them. A few doctors write poetry. Many, because they constitute an educated class, appreciate poetry. For these reasons the medical profession should be grateful to Emilie Conklin for a book of verse entitled *Doctors, I Salute!*, "the first book of verse ever dedicated to the medical profession." We present our compliments to Mrs. Conklin and hope that this little volume of verse will finds its way not only into the hands of the medical profession but into the hands of many others who would like to know of the ways, of the dreams and of the accomplishments of their doctors.

Department of Clinical and Medical Education of the Medical Society of Virginia

University of Virginia Medical School Clinic.

The twenty-second semi-annual postgraduate clinic was held at the University of Virginia Medical School on Friday, December 2. The entire morning session was devoted to showing a series of medical motion pictures at the University Theater. The guest clinician on the afternoon program was Dr. John Homans, Clinical Professor of Surgery at Harvard University and well known as author of the textbook on surgery. The entire program as arranged by Dr. Staige Blackford at the request of Dr. L. T. Royster, Chairman of the Committee on Graduate Clinics, follows:

9:00-9:26 A. M.—"THE PHYSIOLOGY OF FERTILIZATION IN THE HUMAN FEMALE"
Made by Dr. Ayres Anderson, Denver, Colorado.
(Exhibited through the courtesy of Mead Johnson & Co.)

9:30-10:15 A. M.—"ALLERGY"
Made by Dr. Bret Ratner, New York
(Exhibited through the courtesy of Mead Johnson & Co.)

10:20-10:45 A. M.—"ELECTROCARDIOGRAPHY"
Made by Dr. L. M. Hurxthal, Boston
(Exhibited through the courtesy of The Lahey Clinic)

10:55-11:40 A. M.—"THE SERUM TREATMENT OF PNEUMONIA" (new film)
(Exhibited through the courtesy of the Lederle Laboratories)

11:45-12:15 P. M.—"COLLAPSE THERAPY"—PNEUMOTHORAX AND THORACOPLASTY
(Exhibited through the courtesy of Eli Lilly Co.)

LUNCH

The afternoon session was held in the Medical School Amphitheatre.

2:00-3:00 P. M.—"RECENT ADVANCES IN CHEST SURGERY"
Dr. E. C. Drash, Assistant Professor of Clinical Surgery and Gynecology, University of Virginia, Department of Medicine

3:00-4:00 P. M.—CLINIC: "CHRONIC ULCERS OF THE LEG"
Dr. John Homans, Clinical Professor of Surgery, Harvard University

The following doctors registered at the clinic:

Dr. B. A. Rice, Forest.
Dr. C. D. Bennett, Chatham.
Dr. D. M. Kipps, Front Royal.
Dr. Percy Harris, Scottsville.
Dr. W. A. Kyger, Free Union.
Dr. E. B. Dovell, Unionville.
Dr. G. R. Elliott, Orange.
Dr. T. R. Rolston, New Hope.
Dr. A. L. Tynes, Staunton.
Dr. J. F. Thaxton, Tye River.
Dr. H. G. Byrd, Louisa.
Dr. Harloe Bailey, Rural Retreat.
Dr. Florence Mahoney, Mary Baldwin College.
Dr. E. A. Harper, Lynchburg.
Dr. R. E. Maurer, Lynchburg.
Dr. T. H. Daniel, Charlottesville.
Dr. M. L. Rea, Charlottesville.
Dr. Dan Nichols, Charlottesville.
Dr. Marshall J. Payne, Staunton.
Dr. W. F. Hartman, Swoope.
Dr. G. B. Barrow, Staunton.
Dr. J. A. Hurt, Staunton.
Dr. John F. McGavock, Crozet.
Dr. A. M. Weaver, Colony.
Dr. Charles K. Reinke, Colony.
Dr. N. P. Cocke, Charlottesville.
Dr. Thomas E. Jones, Charlottesville.
Dr. A. A. Sizer, Schuyler.
Dr. C. H. Iden, Berryville.
Dr. Frank E. Tappan, Berryville.
Dr. C. O. Dearmont, White Post.
Dr. J. D. Miller, Bridgewater.
Dr. A. F. Robertson, Staunton.
Dr. C. M. Rice, Sweetbriar.

Dr. R. C. Manson, Richmond.
Dr. John P. Lynch, Richmond.
Dr. Robert V. Terrell, Richmond.
Dr. E. D. Davis, Crozet.
Dr. Homer E. Clark, Massie's Mills.
Dr. R. L. Page, Batesville.
Dr. W. C. Mason, Gordonsville.
Dr. H. C. McCoy, Gordonsville.
Dr. T. E. Patteson, Ransons.
Dr. H. S. Daniel, Louisa.
Dr. Charles E. Watson, Broadway.
Dr. L. G. Roberts, Moorman's River.
Dr. R. B. Turnbull, Blue Ridge Sanatorium.
Dr. John E. Cole, Fredericksburg.
Dr. T. Welch Dew, Fredericksburg.
Dr. H. L. Baptist, Ivy Depot.
Dr. William Wood, Charlottesville.
Dr. Charles L. Savage, Ashland.
Dr. Edwin Vaughan, Ashland.
Dr. J. W. Devine, Jr., Lynchburg.
Dr. Charles W. Putney, Staunton.
Dr. H. F. White, Fishersville.
Dr. W. H. Springall, Gloucester.
Dr. W. A. Murphy, Staunton.
Dr. Frank B. Stafford, Blue Ridge Sanatorium.

Internal Medicine.

At the present time arrangements are being made for postgraduate courses in internal medicine to be offered in Lynchburg and Alexandria. The local societies in these two cities have appointed committees to select topics, suggest speakers and make local arrangements for the courses. It is expected that these courses will be begun early in the new year. Other local societies desiring to make arrangements for similar short courses should communicate with the Executive Secretary.

GEORGE B. ZEHMER,
Executive Secretary.

Proceedings of Societies

James River Medical Society.

On December 12, doctors from Buckingham, Fluvanna and Cumberland Counties met and organized the James River Medical Society and the following officers were elected: President, Dr. J. H. Yeatman, Fork Union; vice-president, Dr. N. P. Snead, Cartersville; and secretary-treasurer, Dr. E. J. Haden, Ore Bank. Additional members are:

Dr. Perkins Glover, Arvonia.
Dr. S. W. Selden, Kents Store.
Dr. J. H. Mitchell, Dillwyn.
Dr. J. E. Haynesworth, Buckingham.
Dr. T. L. Driscoll, Columbia.
Dr. A. C. Whitley, Palmyra.
Dr. T. E. Patteson, Ransons.
Dr. J. N. Dudley, Farmville.
Dr. E. B. Nuckols, Cumberland.
Dr. P. E. Tucker, Buckingham.

Meetings will be held quarterly at specially designated places, the next to be at the William Frank Hotel, Fork Union, on January 11, 1939, at 8:00 p. m.

The Lynchburg Academy of Medicine

Held its regular monthly meeting in the Elks' Club, December 5, with the president, Dr. Elisha Barksdale, presiding.

As this was the annual meeting, only business for the year was attended to. The Academy voted $25.00 to the Christmas charity fund of the Elks' Club as a token of appreciation for the use of their club as a meeting place.

The draft of proposed understanding between the Medical Society of Virginia and the Farm Security administration was approved.

A committee of Drs. E. G. Scott, Chairman, John Hundley, Jr., and D. P. Scott was appointed to arrange postgraduate courses in internal medicine through the extension division of medical education.

Our yearly contribution to Journals was raised from $80.00 to $100.00.

In the election of officers, Dr. S. E. Oglesby was elected president, Dr. E. G. Scott, vice-president. Drs. Powell Dillard and H. L. Riley were elected to the Board of Trustees which is now composed of Drs. E. Barksdale, S. E. Oglesby, E. G. Scott, James Gorman, J. W. Devine, Sr., Powell Dillard and H. L. Riley.

At the meeting of the Academy on November 7, Dr. C. C. Coleman of Richmond was the guest speaker and discussed in minute detail the many problems which arise in the "Management of Acute Head Injuries". In accordance with the speaker's request, previously written out questions presented by

members of the Academy were fully discussed by Dr. Coleman and the subject proved most interesting and enlightening.

C. E. KEEFER, M.D.,
Secretary-Treasurer.

The Richmond Academy of Medicine

Held its annual meeting on December 13, at which time the following officers were elected for the coming year: President, Dr. Karl S. Blackwell; vice-presidents, Dr. J. Powell Williams and Dr. Harry J. Warthen; recording secretary, Dr. James P. Baker; and sergeant-at-arms, Dr. Charles Outland. The board of directors for 1939 will consist of Dr. A. I. Dodson, retiring president, Dr. Blackwell, Dr. J. Powell Williams, Dr. M. Pierce Rucker, Dr. C. M. Caravati, Dr. T. Dewey Davis, and Dr. T. N. Barnett. Miss Mary Martha Nokely is executive secretary-treasurer.

After the election, the president and chairmen of various committees gave their annual reports, following which a delicious buffet supper was served in the dining room of the building.

The Arlington County Medical Society

Held its final meeting of 1938 at the Washington Golf and Country Club, on December 15, under the presidency of Dr. Charles F. Kincheloe. Following a short business session, the election of new officers for 1939 was held. Dr. Alfred M. Palmer of Arlington was elected president, Dr. Charles C. Canada of East Falls Church, vice-president, and Dr. Henry L. Bastien of Arlington was re-elected secretary-treasurer.

Dr. Paul W. Bowden, assistant county health officer, and Captain Robert L. Cavenaugh, Medical Corps, U. S. Army were elected to membership.

The Arlington County Medical Society meets monthly at 8:30 P. M. on the third Thursday at the Washington Golf and Country Club. Any members of the Medical Society of Virginia who are in this section of the state on these dates are cordially invited to attend.

HENRY L. BASTIEN,
Secretary.

Fredericksburg Medical Association.

New officers of this Association, who will be installed in January, are: Dr. J. Minor Holloway, president; Dr. L. Philip Cox, vice-president; and Dr. Thomas B. Payne, secretary-treasurer (re-elected). All are of Fredericksburg.

The Roanoke Academy of Medicine

Held its December meeting on the 5th, with the following program: The Prevention of Hearing Difficulties in Children by Dr. H. B. Stone, Jr.; and Changes in Venous Pressure and Body Weight Following the Treatment of Congestive Heart Failure by Dr. J. Edwin Wood, Jr., University of Virginia.

Dr. W. W. S. Butler is president of the Academy and Dr. A. C. Davis, secretary-treasurer.

The Southside Virginia Medical Association

Met in Petersburg, December 13, with Dr. Meade Edmunds, president pro tem, presiding. The following presented papers, which were freely discussed: Drs. H. C. Cantor, Ruth Mason Grigg, and George H. Reese, Petersburg; Drs. Harry J. Warthen, Douglas G. Chapman, and James P. Baker, Jr., Richmond.

Officers for 1939 were elected as follows: President, Dr. C. S. Dodd, Petersburg; vice-presidents, Drs. R. S. Montgomery, South Hill; H. G. Stoneham, Waverly; L. A. Law, Alberta; and W. T. Gay, Suffolk; and secretary-treasurer, Dr. R. L. Raiford (re-elected), Franklin. The executive committee is Drs. W. D. Kendig, Kenbridge; W. J. Ozlin, South Hill; and J. L. Hamner, Mannboro. Drs. Reuben F. Simms and Harry J. Warthen, Richmond, were elected to honorary membership.

Following the business meeting a dinner was tendered the members and guests by the Petersburg Medical Faculty.

This association will hold its next meeting in Franklin on the second Tuesday in March.

The Petersburg Medical Faculty

Recently elected the following officers: President, H. M. Snead, succeeding Dr. Leta J. White; vice-presidents, Drs. J. E. Hamner and Philip Jacobson; and secretary, Dr. Wilbur M. Bowman.

The South Piedmont Medical Society

Held its regular semi-annual meeting in South Boston, November 22, with the president, Dr. C. D. Bennett, Chatham, presiding. There was an attendance of about forty physicians. The following are subjects and leaders of the symposium: Prenatal Care by Dr. E. S. Groseclose, Lynchburg; Obstetrical Analgesia and Anesthesia by Dr. F. O. Plunkett, Lynchburg; and Operative Obstetrics by Dr. Walter D. McMann, Danville. Other papers by invited guests were: Post Hospital Care of Surgical Patients by Dr. Hugh H. Trout, Roanoke; Treat-

ment of Constipation with Special Reference to Functional Causes by Dr. F. C. Rinker, Norfolk; and The Diagnosis and Treatment of Aortic Syphilis by Dr. Kinloch Nelson, Richmond.

Dr. J. A. Owen, Turbeville, is secretary of this society.

The next meeting will be held in Lynchburg in April, at which time new officers will be elected.

News Notes

We Wish You A Happy And Prosperous New Year!

Seaboard Medical Association of Virginia and North Carolina.

At the annual meeting of this Association held in Greenville, N. C., December 6-8, the following officers were elected: President, Dr. Julian L. Rawls, Norfolk; vice-presidents, Dr. Wm. M. B. Brown, Greenville, N. C.; Dr. J. L. Rawls, Suffolk; Dr. J. A. Payne, Sunbury, N. C.; and Dr. Southgate Leigh, Norfolk; and secretary-treasurer, Dr. Clarence Porter Jones (re-elected), Newport News.

The 1939 meeting will be held at Virginia Beach, December 5-7.

Appointments Announced by State Hospital Board.

Senator Morton G. Goode, chairman of the State Hospital Board, has announced the following appointments:

Dr. D. L. Harrell, Jr., first assistant physician at the State Colony for Epileptics and Feebleminded, has been appointed superintendent of the State Colony for colored patients of this class to be opened at Petersburg about the first of January;

Dr. John O. Hurt, recently assistant physician at the Western State Hospital in Staunton, has been named principal hospital physician at the State Colony for Epileptics and Feebleminded, succeeding Dr. Harrell;

Dr. Louis X. Kolipinski has been promoted from senior assistant physician to principal hospital physician at the Central State Hospital, Petersburg, and Dr. Frank A. Dick has been appointed an assistant physician at Central State Hospital.

News Notes from the Medical College of Virginia.

Dr. Porter P. Vinson, professor of bronchoscopy and esophagoscopy, was present for the thirteenth Stanford Chaille Memorial Oration at New Orleans, Louisiana, December 12. Doctor Vinson spoke on "Aids in the Early Diagnosis of Primary Bronchial Malignancy".

Excavation for the new teaching hospital has been completed and the driving of piles started on December 15. The contract for elevators has been awarded the Otis Elevator Company; the general contract for construction will be let in the spring.

Dr. Walter E. Vest, an alumnus of the college, and newly elected president of the Southern Medical Association, was a recent visitor to the institution.

The Founders' Day exercises on December 1 were well attended by students, faculty, and friends of the college. Mr. Virginius Dabney, Editor of the *Richmond Times-Dispatch,* spoke on "Medicine in a Changing World".

The enrollment for the session of 1938-39 shows 312 in medicine; 141 in dentistry; 119 in pharmacy; 135 in nursing, a total enrollment of 707. In medicine there are thirty-six female students registered, two in dentistry and seven in pharmacy.

The college was host to the Section on Zoological Sciences of the first Virginia meeting of the American Association for the Advancement of Science in Richmond, December 27 to 31.

The Sub-Section in Dentistry will also have its headquarters at the college.

Some 400 papers are listed in the program for these two sections, the one on Zoological Sciences being one of the largest in the A. A. A. S.

News from University of Virginia, Department of Medicine.

Dr. Robin C. Buerki, Superintendent of the State of Wisconsin General Hospital and Director of the Study of the Commission on Graduate Medical Education, visited our Medical School on November 11.

Dr. M. V. Ziegler, of the U. S. Public Health Service, spoke to the students of the Fourth Year Class in the Medical School on November 12.

Dr. E. S. Elwood, Secretary-Treasurer of the National Board of Medical Examiners, spoke to the students of the Second Year Class in the Medical School on November 9.

On November 21, Dr. William Henry Sebrell, of the U. S. Public Health Service, addressed the University of Virginia Medical Society on the subject of Pellagra.

Dr. John Homans, Clinical Professor of Surgery at Harvard University, spoke before the University of Virginia Medical Society at their meeting on December 1 on the subject of Thrombophlebitis.

The fifth Post-Graduate Course in Ophthalmology and Otolaryngology sponsored by the University of Virginia was held in the Medical School from December 6 to 9. Lectures and clinics were given by Dr. Clarence H. Smith, Professor of Diseases of the Ear, New York Post-Graduate Medical School; Dr. Chevalier L. Jackson, Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University; Dr. E. Ross Faulkner, Surgeon Director, Manhattan Eye, Ear and Throat Hospital, New York City; Dr. Romeo A. Luongo, Graduate School of Medicine, University of Pennsylvania; Dr. Harry S. Gradle, Professor of Ophthalmology, Northwestern University Medical School; Dr. Grady E. Clay, Professor of Ophthalmology, Emory University; and Dr. James W. White, Associate Professor of Clinical Ophthalmology, New York University. At the dinner held at Farmington Country Club on December 7, Mr. William Shands Meacham, of the *Richmond Times-Dispatch,* spoke on The Relationship of the Press to Medicine. Forty-nine physicians were registered for the course.

The twenty-second Postgraduate Clinic sponsored by the Medical Society of Virginia was held at the University of Virginia on December 2. The morning session consisted of the exhibition of the following medical motion pictures: Clinical Endocrinology, Management of Pneumonia, Electrocardiography and The Anemias. At the afternoon session Dr. John Homans, of Harvard University, conducted a clinic on Chronic Ulcers of the Leg and Dr. E. C. Drash, of the University Hospital, spoke on Recent Advances in Chest Surgery. Fifty-nine physicians attended the Clinic.

On December 9, Dr. Alfred Blalock, of Vanderbilt University, addressed the University of Virginia Medical Society on the subject of Surgical Shock.

Dr. Vilray P. Blair, Professor of Clinical Surgery at Washington University in St. Louis, visited the Medical School on December 5.

Dr. Edwin P. Lehman attended the meeting of the Southern Surgical Association at White Sulphur Springs from December 6 to 8 and presented a paper on Thyrotoxicosis, Including a Study of the Duration of Pre-Operative Treatment.

The New York Polyclinic Medical School and Hospital

Announces that its Clinical Society will hold its monthly meeting on Monday evening, January 9, 1939, at which time the following program will be presented:

1. "The Prostate and the Practitioner" by Joseph F. McCarthy, M.D., Professor of Urology, New York Polyclinic Hospital. Discussion to be opened by J. Sydney Ritter, M.D., and Samuel E. Kramer, M.D.
2. "Recent Advances in the Treatment of Internal Diseases" by Llewellys F. Barker, M.D., Baltimore, Md. Discussion to be opened by Orrin S. Wightman, M.D., Bernard Sachs, M.D. and James P. Croco, M.D.
3. "Clinical Diagnosis of Peripheral Vascular Diseases—Motion Pictures" by Benjamin Jablons, M.D., New York Polyclinic Hospital.

Dr. Rudolf Schindler, Chicago, Ill., read a paper on "The Clinical Value of Gastroscopy" on November 30, and Dr. H. M. Eberhard, Professor of Gastroenterology at Hahnemann Medical School, Philadelphia, Pa., read a paper on "The Effect of Hot and Cold on the Gastro-intestinal Tract" on December 15.

Married.

Dr. Ennion Skelton Williams and Miss Ann Hill Brown, both of Richmond, December 2. Dr. Williams is a graduate of the Medical College of Virginia in 1930.

Dr. James Lucius Davis, class of '36, University of Virginia, and Miss Katherine Longcor, Greendell, N. J., November 19. Dr. Davis served his internship at the Essex County Hospital, Belleville, N. J. They will make their home at Thacker Mines, W. Va.

Dr. William Frederic Delp and Miss Dorothy Elizabeth Wallner, both of Pulaski, November 15. Dr. Delp is an alumnus of the Medical College of Virginia, class of '34.

Dr. Marvin Smith Cashion, Mooresville, N. C., and Dr. Delores Isabel Mendez, San Juan, Puerto

Rico, in November. Both are graduates of the Medical College of Virginia in 1937 and are now serving residencies at the Presbyterian Hospital in San Juan.

Superintendent of Catawba Sanatorium.

Dr. John B. Nicholls, who for some years has been medical director of Catawba Sanatorium in this State, has been named to the superintendency of this Sanatorium, thus combining the responsibilities of his past duties and those of the late Mr. A. Lambert Martin, formerly business manager there.

Southern Surgical Association.

At the recent meeting of this Association at White Sulphur Springs, W. Va., under the presidency of Dr. Lloyd Noland of Fairfield, Ala., the following were elected officers for the coming year: President, Dr. A. O. Singleton, Galveston, Texas; vice-presidents, Dr. Barney Brooks, Nashville, Tenn., and Dr. Carrington Williams, Richmond; and secretary, Dr. Alton Ochsner (re-elected), New Orleans, La. Augusta, Ga., was selected as the 1939 place of meeting.

Dr. A. Stephens Graham of Richmond was elected to membership in the Association at this meeting, being the only Virginia doctor to receive this honor.

Dr. George B. Arnold,

Superintendent of the State Colony for Epileptics and Feebleminded, has been named by Governor Price as a member of his advisory board on mental hygiene, established several years ago. His term of office is to February 1, 1942.

Dr. J. G. Bentley,

Recently of Bristol, who has been engaged in the practice of medicine in Southwestern Virginia for the past twenty-four years, has purchased the old Bentley home at Pores Knob, N. C., where he has located and will continue the practice of his profession.

A Correction.

In the list of Special Committees given under the President's Message in the December issue of the MONTHLY, we listed one member of the Child Welfare Committee as Dr. Edgar A. Harper. This was an error and should have been Dr. Edwin A. Harper.

Mississippi Valley Medical Society 1939 Essay Award.

The Mississippi Valley Medical Society offers a cash prize of $100.00, a gold medal and a certificate of award for the best unpublished essay on a subject of interest and practical value to the general practitioner of medicine. Entrants must be members of the American Medical Association, and the winner will be invited to present his contribution before the next annual meeting of the Mississippi Valley Society, in September, 1939. All contributions must not exceed 5,000 words, typewritten in English manuscript form, submitted in five copies, and must be received *not* later than May 1, 1939. Further details may be secured from Dr. Harold Swanberg, secretary, Mississippi Valley Medical Society, 209-224 W. C. U. Bldg., Quincy, Ill.

Dr. James Q. Gant, Jr.,

Class of '35, Medical College of Virginia, has recently been appointed to the drug division of the staff of the Federal Food and Drug Administration, in Washington. He served his internship at Stuart Circle Hospital, Richmond, and later as resident physician at Bellevue Hospital, New York, in the dermatological and syphilological service.

Dr. McIlwaine to Serve on Medical Examining Board.

Governor Price has appointed Dr. William B. McIlwaine, Petersburg, as a member of the State Board of Medical Examiners, succeeding the late Dr. Fletcher J. Wright. He will serve for a term ending April, 1942.

Dr. Edwin J. Palmer,

Class of '34, Medical College of Virginia, now a member of the medical staff at the State Hospital, Gardner, Mass., recently assisted in the course given at the Metropolitan State Hospital for physicians who were preparing for the December Board of Psychiatry and Neurology.

Dr. William W. Zimmerman,

Recently of Waynesboro, has located in Hillsboro, where he has taken over the practice of the late Dr. H. H. Green.

Physician to State Teachers College.

Dr. Jean McNutt Martin of Middlebrook has been appointed resident physician at the State Teachers College, Farmville, succeeding Dr. Susan W. Field who resigned recently and returned to her home in Nebraska because of her health. Dr. Martin is a graduate of the University of Virginia School of Medicine in the class of '36, following which she interned at North Carolina Hospitals, and has re-

cently been at Bellevue Hospital in New York City. She will enter upon her new duties on January 8.

"Guard Against Syphilis"

Is the slogan of the National Social Hygiene Day to be observed on February 1. There will be some 5,000 meetings throughout America to highlight present community campaigns against syphilis and public attention will be focused on vital next steps in the conquest of syphilis. The American Social Hygiene Association reports increased activity and interest on the part of official and voluntary health and welfare agencies, civic groups, service clubs, women's organizations, churches, schools and upward of 1,000 youth bodies, and this points to a larger nation-wide demonstration than in previous years. The United States Public Health Service is again cooperating in this event.

Posters, publicity and program aids, etc., may be secured from the American Social Hygiene Association, 50 W. 50th St., New York.

Dr. Linwood D. Keyser,

Roanoke, was a guest speaker of the Southeastern Branch of the American Urological Association meeting in Louisville, Kentucky, on December 2, at which time he reviewed his researches on the etiology of urinary calculi in an essay entitled "Modern Concepts of Stone in the Urinary Tract".

Drs. Johns, Daniel and Johns.

Announcement has been made of the association of Dr. William A. Johns with Drs. Frank S. Johns and Donald S. Daniel in the practice of surgery, with offices in the Johnston-Willis Hospital, Richmond.

Dr. James E. Nance,

Who has been resident eye, ear, nose and throat physician of the New Jersey State Hospital at Trenton for the past five years, has located at Kannapolis, N. C., where his practice will be limited to diseases of the eye, ear, nose and throat. Dr. Nance is an alumnus of the Medical College of Virginia and practiced for a time at Franklin, Va., before going to New Jersey.

Postgraduate Institute.

The Philadelphia County Medical Society announces the completion of its scientific program for the Fourth Annual Postgraduate Institute to be held in the Bellevue-Stratford Hotel, Philadelphia, during the week beginning March 13. Blood Dyscrasias and Metabolic Disorders are the subjects to be considered, these to be subdivided for convenience in instruction into eighty-six clinical lectures, with open forum discussions.

Further information may be secured from the Philadelphia County Medical Society, Twenty-first and Spruce Streets, Philadelphia, Pa.

New Members of National Advisory Cancer Council.

Surgeon General Thomas Parran of the U. S. Public Health Service has announced that Dr. James B. Murphy, Chief of the Cancer Research Division of the Rockefeller Institute, New York, and Dr. Mont Rogers Reid, Director of Surgical Service of the Cincinnati General Hospital and Professor of Surgery at the University of Cincinnati, have been named as new members of the National Advisory Cancer Council for three-year terms.

Drs. McCastor Receive Appointments.

Dr. Joseph McCastor, class of '27, Medical College of Virginia, now living in New York City, has received an appointment on the Surgical Staff of the City Hospital there, and his wife Dr. Mary McCastor, who graduated abroad later, has received a residency in anesthesia in the New York Postgraduate Medical School and Hospital.

Dr. W. R. Bond

Recently moved from Richmond to New York, to become affiliated with the medical research division of the Schering Corporation with laboratories at Bloomfield, N. J.

Dr. William K. Lloyd,

For several years located at Christiansburg, has moved to Anniston, Ala., where he will be engaged in the practice of obstetrics and gynecology.

Birth.

Dr. and Mrs. W. A. Porter of Hillsville have been receiving congratulations on the birth of a daughter, Patricia Anne, born on November 21.

Admitted to Fellowship in American College of Surgeons.

At the recent meeting of the American College of Surgeons, the following Virginia doctors were admitted to fellowship:

Dr. Cornelinus B. Courtney, Newport News.

Dr. Francis R. Crawford, Farmville.

Dr. William T. Gay, Suffolk.

Dr. John A. Pilcher, Jr.,

Roanoke, for sometime associated with the Gill Memorial Hospital there, has just completed a post-graduate course in eye, ear, nose and throat diseases in London, England, and opened offices in Shenandoah Life Building, Roanoke, the first of January, where he will limit his practice to these specialties.

The American Board of Ophthalmology

Announces an important change in its method of examination of candidates for the Board's certificate. They will be divided into two parts. Candidates whose applications are accepted will be required to pass a WRITTEN examination which will be held simultaneously in various cities throughout the country approximately sixty days prior to the date of the oral examination.

ORAL examinations will be held at the time and place of the meeting of the American Medical Association and of the American Academy of Ophthalmology and Oto-Laryngology, and occasionally in connection with other important medical meetings. The ORAL examination will be on: External Diseases, Ophthalmoscopy, Pathology, Refraction, Ocular Motility, Practical Surgery.

Only those candidates who pass the written examination and who have presented satisfactory case reports will be permitted to appear for the oral examination.

Examinations scheduled for 1939: WRITTEN: March 15 and August 5. ORAL: St. Louis, May 15; Chicago, October 6.

Applications for permission to take the written examination March 15 must be filed with the Secretary not later than February 15. Forms and detailed information should be secured at once from Dr. John Green, Secretary, 6830 Waterman Avenue, St. Louis, Mo.

The National Society for the Prevention of Blindness

Announces the appointment of a Nursing Advisory Committee, headed by Miss Katherine Tucker, Professor of Public Health Nursing in the School of Education, University of Pennsylvania. The Committee has been selected to represent the various fields in nursing. Besides Miss Tucker, there are eight members of the Committee, one of them being Miss Josephine McLeod, Secretary-Treasurer of the Virginia State Board of Examiners of Nurses, Richmond.

The Committee is undertaking, as its first step, an analysis of nursing functions which contribute to the conservation of sight.

The Winchester Memorial Hospital

Has enlarged its facilities with a new fire-proof wing, which houses modern equipment for the operation of X-ray and pathological laboratories, a department of physical therapy, and an emergency operating room for first-aid treatment of accident cases. The funds for these improvements were provided by persons as memorials to relatives.

Medical Research.

Physician having access to a complete medical library offers his services for locating references or for medical research of any kind, for authors and others. Fees reasonable. Address "No. 38", care VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond. (*Adv.*)

Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

For Sale:

Cystoscope, Brown-Buerger, convertible, with concave sheath—complete accessories; used less than six times; cost $120.00; no reasonable offer refused. Write "Cystoscope", care this journal, 1200 East Clay Street, Richmond. (*Adv.*)

Obituary Record

Dr. Lewis Gravely Pedigo,

Prominent physician of Southwestern Virginia, died at his home in Salem, November 21. He had retired from active practice about five years ago because of ill health. Dr. Pedigo was a native of Hanover County and was eighty years of age. He was known as the "dean" of the Roanoke College alumni, from which he graduated in 1876. His medical degree was received from the former New York University Medical College in 1881. Dr. Pedigo practiced in Roanoke for about thirty years and was an ex-president of the Roanoke Academy of Medicine; a

former vice-president of the Medical Society of Virginia, of which he had been a member for fifty-three years; a former president of the Southwestern Virginia Medical Society; and was a member of the British-American Society for Psychic Research.

Dr. Pedigo was widely known for his discovery of an antidote for prussic acid and the value of oil of eucalyptus in the treatment of tuberculosis. He also did extensive research in mental diseases.

His wife and a brother survive him.

Dr. Jesse N. Clore,

One of Madison County's most beloved and influential citizens, died suddenly on December 1, following a heart attack. He was born in Madison in 1869 and graduated from the Medical College of Virginia in 1896. Dr. Clore was active in civic life, having served with the Madison Chamber of Commerce, and was a former secretary of the County Board of Health. He had been a member of the Medical Society of Virginia for thirty-three years. A son and three daughters survive him.

A local newspaper writes: "With the death of Dr. Clore, there passes another member of that staunch but fast disappearing group—The Country Doctor. For a lifetime, through all kinds of weather, at any time of day or night, Dr. Clore rode the highways and byways, bringing relief and aid to the sick and suffering. He was known to do the work of two men during the later years of his life and had frequently been appealed to to take life easier. But he felt the sick had first call on his services and through the years his work increased instead of decreasing. . . . To people in all walks of life his passing meant not only the community's loss but the loss of a personal friend as well."

Dr. John Emmet Early,

Prominent physician of Charlottesville, died December 12, at the age of seventy. He was a graduate of the University of Virginia, Department of Medicine in 1893, and had practiced in Charlottesville for forty years. Dr. Early was a former member of the City Council, and active in the medical life of his section. He had been a member of the Medical Society of Virginia since 1900. His wife and a son survive him.

Dr. Walter Carlton Rosser,

Lynchburg, died November 24, after a long illness. He was sixty-three years of age and a graduate of the former University College of Medicine, Richmond, in 1897. Since his graduation, Dr. Rosser had practiced in Campbell County and located in Lynchburg in 1926. He was a Mason and had been a member of the Medical Society of Virginia for thirty-seven years. He is survived by his wife and four children.

Dr. George Oliver Emerson

Died November 21, at his home "Bachelor's Hall" in Pittsylvania County. He was sixty-six years of age and a graduate of the former University College of Medicine, Richmond, in 1898. Dr. Emerson joined the Medical Society of Virginia in 1901. His son, Dr. George Oliver Emerson, Jr., graduated from the University of Virginia, Department of Medicine, in 1937.

Dr. James Thomas Strickland

Died at his home in Roanoke, November 25, following a long illness. He was a native of Patrick County and eight-one years of age. Dr. Strickland received his medical training at the Jefferson Medical College of Philadelphia, graduating there in 1882. He had practiced medicine in Roanoke for forty-six years, and had been a member of the Medical Society of Virginia since 1891.

Dr. William Stone Blakiston,

Arlington, died September 29, from acute bacterial endocarditis. He was thirty-one years of age and a graduate of the George Washington University School of Medicine, Washington, D. C., in 1932. Dr. Blakiston was a member of the Medical Society of Virginia.

Dr. Paul Rutherford MacFadyen, Sr.,

Concord, N. C., died November 26, after an illness of several years. He was sixty-four years of age and a graduate of the former University College of Medicine, Richmond, in 1901. Dr. MacFadyen was the founder of Concord's first hospital and was for many years the only surgeon there. One of his sons is Dr. Paul Rutherford MacFadyen, Jr., class of '29, University of Virginia, Department of Medicine.

Dr. Walter Clark Ashworth,

Former director and owner of the Glenwood Park Sanitarium, Greensboro, N. C., died December 16, after a long illness. He was a half-brother of Dr. O. O. Ashworth, of Richmond.

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CONTENTS

Washington's Predilection for Doctors and Doctoring. Walter A. Wells, M. D., F. A. C. S., Washington, D. C. 65

Recollections of a Country Doctor. M. O. Burke, M. D., Richmond, Va. 68

Experience with Prostatic Resection. E. M. Kirby, M. D., and John H. Neff, M. D., Charlottesville, Va. 73

Hemochromatosis—A Study of Three Cases. Nathan Bloom, M. D., Richmond, Va. 79

Treatment of Painful Lesions of the Anorectum in General Practice. Garnet W. Ault, M. D., Washington, D. C. 86

Psychiatric Aspects of Physical Illness. Joseph R. Blalock, M. D., Marion, Va. 92

Hydatid Mole—Case Report. W. P. Barnes, M. D., Richmond, Va. 94

The Correlation Between the Pediatrist, Psychiatrist and Psychologist. William B. McIlwaine, M. D., Petersburg, Va. 96

The Blood Smear in Differential Diagnosis. J. H. Scherer, M. D., Richmond, Va. 99

Herniation of the Intervertebral Disc—A Report of Two Cases. James T. Rountree, M. D., Front Royal, Va. 103

Review of Literature on Mesenteric Adenitis. J. M. Emmett, M. D., M. Fliess, M. D., and F. H. Yorkoff, M. D., Clifton Forge, Va. 105

The Leukopenic Index in Pediatric Allergy. Paul Hogg, M. D., Newport News, Va. 108

What Our Patients Think. Albert J. Russo, M. D., Baltimore, Md. 109

MISCELLANEOUS 112

PUBLIC HEALTH STATISTICS 113

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 113

TRUTH ABOUT MEDICINE 114

BOOK ANNOUNCEMENTS 115

EDITORIAL 116

PROCEEDINGS OF SOCIETIES 121

NEWS NOTES 122

OBITUARY RECORD 126

INDEX TO ADVERTISERS—Advertising Page 6

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WASHINGTON'S PREDILECTION FOR DOCTORS AND DOCTORING.

WALTER A. WELLS, M.D., F.A.C.S.,
Washington, D. C.

George Washington's boyhood ambition was to join the Navy, but this he had to forego, due to the strenuous opposition of his mother. Opportunity made him a surveyor. He could not resist the alluring offer of his influential neighbor Lord Fairfax. But had not events soon begun to transpire that led to a life-long devotion to the defense of his country, he might well have become a doctor, for, as we shall show he not only manifested throughout his whole career a great partiality for the company of the doctors, but also extraordinary interest in and practical knowledge of the healing art.

It is, I believe quite generally known that the most intimate friend Washington ever had was his personal physician, Dr. James Craik. There was no one he so much loved and trusted.

They met in the days of Washington's first military campaign fighting the French and Indians, and a friendship originated that lasted through life. Dr. Craik became as one of the family at Mt. Vernon; he accompanied Washington on his frontier exploration; he was with him in every battle of the Revolution, and he was at his bedside as physician and friend in his last illness.

Few people know, however, besides Dr. Craik, how many other doctors there were who belonged to Washington's intimate circle of friends—the most welcome of his guests at Mt. Vernon, his campanions of the chase, and at social gatherings, and later many of them taking high places in the councils of state or in the military. The greatest perhaps was Dr. Hugh Mercer (like Craik a Scotchman born and graduate of the University of Edinborough). It was the friendship that sprang up between the young Colonel and the young Doctor that led Mercer to emigrate from his home in Pennsylvania and settle in Fredericksburg, Va. Here, in his apothecary shop, was a room set aside as office for Washington, the surveyor. They must have often sat together, swapping yarns, and sometimes perhaps, when joined by other cronies, indulged in a game of cards. When the war with England broke, Dr. Mercer of Colonial days became General Mercer of the Revolutionary War. He had a brilliant military career, ending all too soon when he lost his life but gained undying fame at the battle of Princeton.

Then too was that clever young Irishman, Dr. James McHenry. Washington soon discovered that he had rare executive ability and made him his private secretary during part of the War. Later settling in Baltimore, he became prominent in public affairs and was elected as delegate to the Constitutional Convention. When Washington became president, he turned to Dr. McHenry to take office of Secretary of War, a place that he continued to hold also into the Adams Administration. Fort McHenry, Md., is so named in his honor.

Especially close personal friends of Washington were Dr. Gustavus R. Brown and his nephew, Dr. William Brown. Dr. Brown, the uncle lived in a grand old manor at Port Tobacco, Md., still standing, with the room that is pointed out as the one which Washington always occupied on his visits in that section. Dr. William Brown lived in Alexandria, and his family likewise was on familiar terms with the Washington family. Later on, this Dr. Brown became Surgeon-General of the Army.

Then there was young Dr. David Stewart, who married Eleanor Custis, the daughter of Benedict Clavert, and widow of Jack Custis, Washington's step-son. Washington held in high esteem Dr. Stewart's ability, and it is said often unofficially sought his opinion on political questions of the day.

There was combined in the person of the Rev. Charles Green both the office of clergyman and physician. He was rector of the Truro Parish church,

which the Washington family attended, and he was sometimes called to prescribe for their bodily ills. Naturally he was a welcome guest at Mt. Vernon.

Responsibility for the medical care of Washington's slave population was at one time consigned to Dr. William Rumney, at another to Dr. James Laurie, both of Alexandria, and both frequently mentioned as house guests at Mt. Vernon.

There is an amusing reference to a visit of Dr. Laurie at Mt. Vernon, in Washington's Diary:

"1760—April 9—Dr. Laurie came here; I may add drunk.

April 10—Mrs. Washington was blooded by Dr. Laurie, who stayed all night."

Dr. Rumney was at one time himself taken ill while there, causing Washington to postpone a trip to the frontier country.

Among other doctor friends of his own state who especially distinguished themselves we must not forget Dr. Arthur Lee and Dr. Theodoric Bland, both of whom were later members of the Continental Congress. Dr. Lee also went as Commissioner to France and was instrumental in securing the help of the country in the struggle for independence.

When Washington went to Philadelphia to serve as the first president, he still showed the same predilection for doctors, as in Virginia. We learn from his diary that there were no places where he more frequently dined than at the home of the distinguished physicians of that city in that day, viz: Dr. Thomas Cadwalder, Dr. John Bond, Dr. Benjamin Rush and Dr. William Shippen.

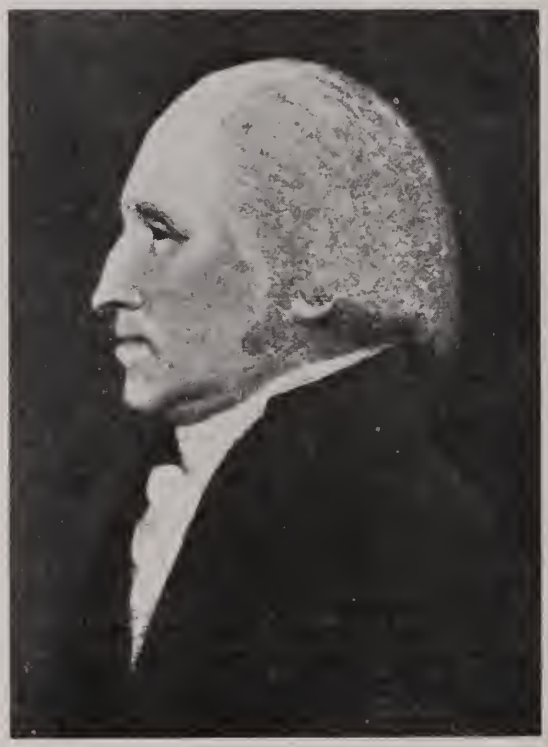
If we cast about to discover if we can the reason for Washington's partiality for doctors and doctoring, we may find it perhaps in the first place in his early contact with illness in his own family—and secondly in the necessity of having personally to superintend the sick among his slaves.

The first serious duty that fell to his lot in life was to go on a trip to Barbadoes as a companion and nurse to his elder brother Lawrence, stricken with consumption. (And while there he himself was taken down with an attack of small-pox, which left its mark, but was not disfiguring.)

The physician called in to treat Lawrence was Dr. William Hilleary. We see a striking example of the exact reverse of practice since that day, in the regime that the patient was endeavoring to observe faithfully, viz: to exercise strenuously and to abstain from meat and strong drink. Dr. Hilleary was referred to as an eminent physician. He was later, as we know, the author of a work on the climate and the diseases of Barbadoes, published in 1811, with notes by the famous Dr. Rush.

Col. Lawrence grew rapidly worse and had to be brought back to die at Mt. Vernon, to which he named George as eventual heir.

The next close contact with illness that drew heavily on the sympathies of George Washington was in the case of little Patsy Custis, his stepdaughter. Although Irving and other biographers



The last portrait of George Washington. (From collection of portraits of the Washington Centennial Commission.) Supposed to have been done in 1797 by Dr. Elisha Cullen Dick, one of Washington's physicians in his last illness.

have stated that Patsy had phthisis, all the evidence points to epilepsy. No father could have been more devoted to his own child than Washington was to Patsy. He sought in every direction a cure for her affliction. He took her to the best doctors in Williamsburg and, when nothing seemed to be of avail, in desperation he resorted to quacks. Her death in early life prostrated him with grief.

Again, in later years, Washington became greatly distressed because of the grave illness of a favorite nephew, Major George Augustine, that must have reminded him of the fatal illness of his favorite brother, for in fact it was the same disease. Wash-

ington sent him at his own expense to the West Indies, without benefit, and when his case became desperate, left Philadelphia where he was serving his first term as president, to visit him in Mt. Vernon. In a letter to Secretary of War Knox, he speaks of the case in almost professional language: "The extreme and dangerous illness of my nephew, who has an affection of the lungs and for the last two or three days a copious discharge of pure blood from them, by which he is so much reduced as to be almost unable to speak, places it out of my power at present to pass any sentence upon . . ." etc.

A year or two later, Washington learned that Anthony Whiting, his manager of Mt. Vernon, was suffering with rheumatism. So he wrote him, "Flannel next to the skin is the best cure of rheumatism I have ever tried."

His successor William Pearce suffered from malaria. And to him he wrote, "I am sorry that you among others have the ague and fever. It has been from what I hear uncommonly rife this year occasioned it is presumed by the wetness of the summer. An emetic after it becomes regular, as I mentioned in one of my former letters, and care generally remove it."

Washington's penchant for prescribing for his fellow-man's ailments did not stop with his family and employees, but sometimes extended to include his guests.

Elkanah Watson has recorded an interesting experience: "The first evening I spent under the wing of Washington's hospitality, we sat a full hour at table by ourselves without the least interruption. After the family had retired, I was extremely oppressed by a cold and excessive coughing, contracted by the exposure of a harsh winter journey. He pressed me to use some remedies, but I declined doing so. As usual after retiring, my coughing increased. When some time had elapsed, the door of my room was gently opened, and on drawing my bed-curtains, to my utter astonishment I beheld Washington himself standing at my bedside with a bowl of hot tea in his hand."

There is one instance too in which Washington volunteered medical help to a hostess. He was on a visit to Newport, R. I., to consult officers of the newly arrived French fleet. He was attending a reception in the home of a Mrs. Christopher Ellery, who on account of illness was not able to be on hand but was represented by her daughter, Miss Betsy. This young lady was suffering from a sore throat, so severe she was hardly able to speak above a whisper. Washington, observing this, could not let the opportunity pass without offering a prescription. He said he himself often suffered from sore throat, and he would like to suggest a remedy if she would use it; she said she would. The remedy he advised was boiled onions in molasses.

As stated, the necessity of looking after the health of a large number of slaves made him familiar with disease and means of taking care of it, for although Washington employed at a salary a physician to attend them, there were many little ills for which he did not think it necessary to call on him.

There is evidence that he did not undertake this duty altogether unprepared for it, for in the invoice of his library we noted the following books:

The Sick Man Visited.
Balanico—Medical Dissertations.
Medical Tracts.
Leigh on Opium.

In looking after such an army of slaves, Washington of course had to encounter some cases of malingering. And he had too some very definite ideas on that subject, as we can see in an extract from a letter to an overseer: "I observe what you say of Betty Davis, but I never found so much difficulty as you seem to apprehend in distinguishing between real and feigned sickness, or when a person is much afflicted with pain. Nobody can be very sick without having a fever, nor will a fever or any other disorder continue long upon anyone without reducing them. Pain also if it be such as to yield entirely to its force, week after week, will appear by its effect, but my people (many of them) will lay up for a month, at the end of which no visible change in their countenance, nor the loss of an ounce of flesh will be discoverable, and their allowance of provision is going on as if nothing ailed them."

He kept on hand always an ample supply of drugs, as you may judge from extract of some orders that went to the house of Cary & Co., London:

4 oz. tinct. of myrrh
4 oz. balsam sulphur
4 oz. pulvus basilic
2 oz. mer dulces
½ lb. ipecauanha powder
½ lb. jalap powder
12 oz. Venice treacle
4 oz. best rhubarb, etc.

In the order that went out in 1767, we find surgical instruments included: viz:

2 best lancets
2 common lancets.

Also, at this time too he was ordering "Jesuits bark" in great quantity. This was the name then used for cinchona, the source of quinine. There was much malaria along the Potomac then, Washington himself being a frequent victim.

A few entries from the diary will give you an idea of Washington's attention to his sick slaves: "1760—January 28—Found the new negro Cupid ill of pleurisy at Dogue Run Quarter and brought him in a cart for better care of him."

"January 30—Cupid was extremely ill all this day and at night when I went to bed I thought him within a few hours of breathing his last."

"February 3—Breechy was laid up this morning with pains in his breast and head attended with fever."

"February 4—Breechy's pain increased and he appeared extremely ill all this day. In suspense whether to send for Doctr. Laurie or not. Visited my Plantation and found two negroes sick at Williamson's Quarters, viz: Gregg and Lucy: ordered them to be blooded."

When Washington, from being a country gentleman, became at the age of forty-three the head of the Army, he transferred the solicitude for the health of his employees and his slaves to the solicitude for the health of his soldiers.

We learn that his first act after reviewing the troops in the field was to visit the hospital, and he wrote at once to Congress: "I have made inquiry into the establishment of the hospital and find it in a very unsettled condition. I could wish it were immediately taken into consideration as the lives and health of both officers and men depend so much on regulation of this department. . . . I have been attentive to the least symptom of small-pox: and hitherto we have been so fortunate as to have every person removed so soon as not only to prevent any communication but alarm or apprehension it might give in the corps. We shall continue the utmost vigilance against this most dangerous enemy."

And so through the whole period of the War, Washington was most diligent in safe-guarding the health of his army; he personally supervised the sanitary conditions of the corps and often gave specific directions as to the personal hygiene of soldiers and he took a positive stand in favor of inoculation, at a time when this procedure was not popularly approved.

It is doubtful if a great military commander before or since ever had such a true appreciation of the importance of the health of the army for the success of war. On this score England had a costly lesson in the Crimean war, half a century later, in the disgraceful loss of 18,000 men who died in hospitals from wounds and diseases compared to only 2,600 killed in battle.

The success of the Revolution and achievement of our independence may be owing in no small measure to Washington's keen interest in the healing art, and his close association with medical men of marked ability.

1606 Twentieth Street, Northwest.

RECOLLECTIONS OF A COUNTRY DOCTOR.

M. O. BURKE, M.D.,
Richmond, Virginia.

Many years ago eighty-five recent graduates came to Richmond to obtain permission to practice medicine in the State of Virginia. The examination was held in the Legislative Hall of the Capitol. We struggled for two days and two nights with the questions given by the Examining Board, and the next day we awaited anxiously to hear the verdict. Forty-five passed and forty failed. This was my only experience in the legislature.

Armed with a diploma and a certificate from the Medical Examining Board, both stating that I was duly qualified to practice medicine, I expected the people of Russell County to at least recognize the fact that I was a doctor; they accepted the title but for several months they seemed to think it was only a part of my name.

I traveled from Bluefield to Castlewood on the first through train over the Clinch Valley Railway.

The building of a railroad through that secluded part of Virginia was the beginning of a new era for the people, a complete change of their habits and a devastation of their primeval forests. I sometimes wonder if so-called modern progress was a blessing to those people. A contented, independent, prosperous population has become a restless, more or less dependent, and in a measure a dissatisfied public.

Today the forests are gone; many of the green carpeted hills and valleys are brown corroded spots. A people who made most of the things they needed and used are now dependent upon factories and different modes of transportation.

The cobbler's bench and saddler's horse, the hand loom and quilting frame, the flax and spinning wheel are found only in antique shops. The scythe and sickle are rusting in some forgotten shed. The millstones adorn the entrance of some estate whose owner probably does not know the difference between the old country flour and the white patent flour which is mostly starch.

The streams, once teeming with fish, have no attraction for the angler; the woodlands, once the hunter's paradise, no longer lure the hounds. Even the old copper still, from which trickled brandy and corn in their purity, has given place to "bottled in bond" or moonshine. The saddle horse, honored by Bob Taylor as "Poetry in satin skins", has been replaced by the gasoline engine.

Has modern progress helped or hindered?

If you will consider the picture of Virginia as that of a huge shoe, its back bathed by the waters of the Atlantic Ocean, its heel and sole resting on North Carolina and Tennessee, its toe firmly planted in the Cumberland Mountains, laced by Kentucky and West Virginia, you will find the great southwest filling the western fourth of this shoe.

It is of five counties that I wish to speak, Tazewell, Russell, Buchanan, Dickenson and Wise, but most particularly of Russell and Buchanan.

Tazewell and part of Buchanan border on West Virginia, part of Buchanan, all of Dickenson and Wise border on Kentucky. Russell is west of Tazewell, south of Buchanan and Dickenson and south and east of Wise.

Through this section extend two mountain ranges, each of the Appalachian System.

Somewhere in West Virginia Big Sandy Ridge starts west, forms the border line between Tazewell and West Virginia, separates Russell from Buchanan and Dickenson and wanders on through Wise; its longest arms reach northward. As its name implies, its formatiorn is sandstone, beautiful and useful building stone. When first quarried it can be cut with a hatchet or sawed with a carpenter's saw; after long exposure to the air it is as hard as granite. It is in this region that we find the coal fields. There are three workable practically horizontal seams of coal above water level, known as drift mines. There are several seams below water level which may some day be worked; they will be shaft mines.

On the Southern border of Tazewell and Russell is another range of mountains, Clinch mountain. This mountain is limestone, and the country between the foot hill of Big Sandy and Clinch mountain is underlaid with lime stone.

Between the two main ranges are several broken ranges and innumerable hills. Most of the valleys are narrow and tortuous. This is a natural blue grass country. The first farmers of this section had trouble with the blue grass. A field cleared one year would be covered with blue grass the next year, and they said the blue grass would ruin the country. They afterwards found that it was a valuable asset.

This section is drained by Clinch river and its tributaries, which wander through Tazewell, Russell, Wise and Scott; then goes into Tennessee to join the Holstone and form the Tennessee river.

Many years ago there were many caves in this lime stone country; in the course of time the stalactites and stalagmites met and left a wealth of onyx.

Fifty years ago these hills were covered with virgin timber; there were millions of yellow poplars measuring fifty to eighty feet to the first limb, three to six feet in diameter.

Until the late eighties the nearest railroad stations were Saltville and Abingdon.

The inhabitants of this part of Virginia were English, Irish and Scotch descent. It is here that we find the purest type of the Anglo-Saxon race.

It was in this section and among these people that I spent the most valuable part of my life.

The first four months were spent in Castlewood. The first month brought no calls; as the third month was waning I became somewhat discouraged and wondered if I had studied the wrong profession.

One of the farm hands asked me to pull an aching tooth; he sat on a log in the yard while I secured a

firm hold with the forceps and pulled with all my strength; he came over the log and was pulled over the grass until the forceps slipped, but the tooth was as securely attached as ever. I extracted the ache but not the tooth. This was my last experience in dentistry.

Shortly after this a young lady had a very bad case of quinsy; I was called and was very glad to render any assistance that I could. I spent most of the time nursing this patient until nature came to the rescue and ruptured the abscess.

The station agent got tangled up over his balance sheet; it was about one dollar and seventy cents short and he could not account for it. He worried over it for two days, then decided to shoot it out. The ball passed through his chest and stuck in the wall of the room, missing his heart about one-half inch. I examined his wounds, found the breath coming from both entrance and exit wounds, but apparently no internal bleeding. I dressed his wounds; then came near fainting from the thought of what might have happened. He was up in a week, said he had not promised any body that he would not try it again. Some of the officials found the mistake in his figures. So he threw the gun away and stuck to his job.

The last of September Dr. Dew asked me to take his practice at Honaker as he was leaving for Eastern Virginia. I left Castlewood Tuesday morning at a very early hour, as I had to make the journey on horseback; the distance by road was twenty-eight miles.

When I started the entire valley was shrouded in a dense fog. The clear cool nights of September were generally accompanied by fog. When I had traveled half way up Sandy Ridge the fog was settling I paused at the top of the ridge to view the scenery; far to the South was Copper Ridge, clothed in every hue of autumnal tinted foliage. The valley was a vast silvery lake of mist. In a little while the gray veil vanished, revealing rolling pastures, interspersed with clumps of woodland, and, in devious turns, Clinch river appeared, accompanied, first on one side, then the other, by a serpentine railroad. I resumed my journey on what would have been a long lonesome road had not nature supplied a gorgeous picture at every turn of the highway. After traveling several miles I met the postman (mail carrier) and asked the distance to Honaker, "Hits about ten mile". I thought my interest in the scenery had shortened the journey until a few hours later I met another man who told me it was about fifteen miles, and, later on, another, who said it was about twenty miles. I then asked if I was on the right end of the road, "Oh yes, jest follow that road up the creek till you come to Sim Comb's store; then cross the ridge and turn left, follow the mountain road and you'll git to Honaker afore sun down."

Later in the afternoon, emerging from a very narrow pass between the hills, I saw a village which I soon learned was Honaker, and the sun was not yet down.

My first impression was that Honaker was reached from the north by a canyon; the south by a narrow pass between the hills; from the east by a deep cut, and from the west by a tunnel. I afterwards found that there were four fairly good roads entering the town.

The morning after my arrival Dr. Dew took me to see a patient with typhoid fever. To reach the house it was necessary to go by a path over two steep hills, through three gates, two sets of drawbars and one fence. One of the hills was so steep that my saddle, not secured by a breast strap, slipped back and back until both saddle and rider went over the horse's tail. I visited this patient every other day until his recovery. His account is still on an old ledger with no credits.

There were no more idle days.

There were very few good roads. Most of the homes were reached by paths. There were many gates to open, drawbars to lower, and fences to let down. Often the paths were the beds of creeks.

The sound of "Hello Doctor" for a while was welcome; later a little disturbing, especially when one had not slept two hours out of the twenty-four, except the sleep obtained on horseback. From necessity I became an expert saddle sleeper.

Swords Creek, the next station east, notorious for fights and murders, was aptly called Butcher Knife.

An escaped convict was supposed to be secluded in a home near the village. The officers had deputized a man from Honaker to assist in the arrest. This man was placed in front of the house while the officers guarded the sides and rear of the house. He was instructed to shoot any one leaving the house. After waiting in the darkness for an hour or more, the door was opened and a man stepped into the yard. The deputized officer fired; unfortunately it

was the head of the household, an elderly man. Dr. Dew was called at once. The ball had struck the sixth rib, ranged upward to the axilla and diagonally down to the seventh rib in his back and was easily removed. The ball did not go beneath the ribs, yet the man died from pneumonia in less than a week.

There was a great deal of excitement, bitter feeling, and fear that a family feud would result.

THRESHING WHEAT

I had often heard the darkies threaten to flail the life out of some one, but had not taken the trouble to look up the word.

I had seen wheat thrashed by steam power, by horses hitched to a sweep and driven in a circle to generate power, and by treadmill power, but had never seen it thrashed by hand power. In passing I saw a man and boy vigorously beating a pile of straw with what seemed to be broken poles. I stopped to satisfy my curiosity. There was a rail pen with rail floor, a canvas sheet under the rails, and the grain and chaff fell on the canvas sheet. The flail was a six-foot pole, the handle; a three-foot pole, the arm. There was a hole in one end of the arm and handle, and through these holes was tied a piece of rope, making a joint. When sufficient quantity of grain had been flailed, the sheet was taken out, the man holding one end, the boy the other end; and shaken until the chaff was blown away by the wind, the grain was then poured into a box or bag and the sheet replaced under the pen. I later learned that many primitive methods were the most practical modes of cultivating and harvesting crops on steep land

AN EARLY CALL

I was awakened one frosty morning by a shrill voice from the lane below my window; I went to the window. The caller said, "We need a doctor on Kent's Ridge right away; a woman is mighty sick; she may be dead by this time." "Come in and get warm while I get ready." "I ain't got time to come in." "You must be cold and you could tell me about the patient while I dress; it will take less time if you come in." With that I closed the window and proceeded to get ready. He came in and I saw disappointment written all over his face. He had come for a doctor and thought he had found a mere boy. He told me the nature of the case and I knew that there was no immediate hurry. It was a two-hour's ride and most of the time was spent in answering his questions. I pretended to be very ignorant about such cases—in fact, I had had very little experience in that particular line of work, but knew what should be done.

When we reached the house I think he was thoroughly disappointed. I left him with a group of men in the yard and proceeded to professional duties. It required probably fifteen minutes to relieve the patient. I then joined the men in the yard. After a little while my caller asked how the patient was. "Do you think you can save her, doctor?" "I hope she will get well." "Ain't you going to do anything for her?" " I have done all I can at present." The men were restless and uneasy. I was enjoying the situation when the husband came out and told the men that the patient was all right. My caller walked around me once or twice, then stopped and said, "You show do know your business."

CEREBROSPINAL MENINGITIS

During the Spring of 1892 we had an epidemic of cerebrospinal meningitis. Most of the victims were fourteen to twenty-two years of age. I felt entirely helpless in this crisis, and wrote to my father, Dr. Jas. P. Burke, Huntsville, Alabama, and to Dr. Hunter McGuire, Richmond, for advice. Their letters were similar, both stating that there was no specific for the disease, to keep them as comfortable as possible with opiates and to expect most of them to die. There were more than forty cases with a death rate of 50 per cent. I have never been through a more heart rending experience than that epidemic.

MY FIRST AMPUTATION

The section hands never bought coal; they appropriated a daily supply from the coal cars. The grade on Finney Hill was too steep for the engines to pull a full train, so half of the train was brought up and left on the siding while the engines went back for the other cars.

The son of one of the section men was getting his night's supply of coal and failed to get off before the train began to move. He fell with one leg under the wheels, the foot and ankle being crushed beyond repair.

I never liked surgery and had no instruments except a pocket case; I purchased a key hole saw at the store, and borrowed a butcher knife. Boiled my saw, butcher knife, scalpel, artery forceps, scissors, needle and thread and proceeded to arrange for the

operation. A cabin is rather a crude operating room. There was no doctor near enough to get in less than six to ten hours, and this was an emergency. The only voluntary help I could obtain was the local blacksmith.

I gave the anesthetic; then, with the assistance of the blacksmith, amputated the leg. However, I did not need the butcher knife.

The boy made a speedy recovery and, by the aid of a forked apple tree limb, shaped and padded, was soon out at play. Twenty years later the boy obtained the position of station agent; he later lost his job, and wanted to sue the railroad for losing his leg.

Typhoid Fever

There were a great many cases of typhoid fever every Summer. All of the people used spring water. In selecting a home site, they selected the spring first, and built the house near the spring, generally a little above it; consequently, the drainage from the buildings frequently polluted the spring. All the springs became muddy or milky after a rain, showing that the source of the spring was not far away. In most of the hollows there were two to six houses. Every hollow had its creek fed by many springs. If there was a case of typhoid in the upper house, later there were cases in the lower houses. It was very easy to trace the source of infection.

To protect them from future infections, we instructed the people to burn all excreta from the patient and to boil all dishes and linen, to observe cleanliness as strictly as possible; to disinfect the springs and, when possible, to use a spring above the building.

I soon learned that people who had had typhoid, no matter how remotely, were practically immune; only six in 1,000 claimed to have had typhoid previously. The routine liquid and starvation treatment caused extreme weakness, emaciation and prolonged convalescence. We often encountered two to four cases in one family; hence it was easy to study the effect of diet and medicine.

Drugs seemed to have very little beneficial effect. Digestants were always needed. Foods that could be digested were allowed and water administered freely. After four years the number of cases was decidedly decreased. I soon came to the conclusion that sanitation, nursing and food were the important factors in typhoid. Since one attack rendered most people immune to a second attack, I hoped that some day we might find something that would prevent the first attack.

A Down Hill Race With A Log.

A rawboned mountain giant was getting out saw logs when he met with a serious accident in trying to out-run a log down hill. There was a long steep ridge; some of the virgin forest remained at the top of this ridge and there were several valuable yellow poplars, remnants of the primeval forest. The side of the ridge had been cleared and was now a blue grass pasture; from the top of the ridge it was an easy matter to start the logs rolling. They found their way to the bottom or foot of the ridge very quickly, and it was bad luck for anything to attempt to check them in their downward progress. The poplars had been cut and sawed into regulation lengths; this man had rolled most of them out and they were resting at the foot of the ridge ready to be hauled to the railroad. It was nearly sundown and one more log was to be rolled out. It was thrilling to watch the logs hurrying down the hillside, gaining momentum at every turn.

This last log rolled only a few feet when it encountered a sapling which stopped its progress; it almost changed ends, but did not have quite enough speed to complete the circle. There were three ways to overcome the obstruction—first, to cut the sapling on lower side of the log, but this was too dangerous; second, roll the upper end up the hill a few feet, but this was rather strenuous for one man; third, was to roll the lower end down hill; this was the easiest way but required a quick eye and a fleet foot to escape the log when it turned and started on its journey. He pried and strained with his crowbar and started his race for a safer place. He had almost reached his goal when he hung his toe under a root or rock and fell full length down hill. Just as he raised himself on hands and knees, the sharp edge of the log struck him in the middle of his "posterum" and split him wide open for several inches. The cut extended through skin and flesh into the rectum and part of the bone.

The messenger had to ride ten miles to reach me and ten miles back to the patient, quite a long agonizing wait for a marathon runner.

After cleansing the wound, repairing the walls of the rectum, adjusting the bones, sewing the muscles and skin, putting on a comfortable binder around the

hips and prescribing powders to partially allay the pain, I left him to the tender mercies of nature and the anxious care of his family.

On my return I was surprised to find him cheerful and comparatively easy. The soft tissues healed and the bones united without leaving a deformity or any incapacity. In six weeks he was able to superintend the loading of his logs; the defeated runner was victorious in the end,—both ends.

204 East Franklin Street.

EXPERIENCE WITH PROSTATIC RESECTION.*

E. W. KIRBY, M.D.,
and
JOHN H. NEFF, M.D.,†
Charlottesville, Virginia.

Prostatic resections were first employed by us in the spring of 1932. At the outset the procedure was used most cautiously and only for the smaller glands. By 1934 it had become the operation of choice for 82 per cent of the operable prostatics. The average percentage for the period since 1934 has been 90. This level of usage has been maintained simply because, in our hands, resection has proven to be the safest and least expensive method of obtaining satisfactory relief from all except the very large prostates. It is no more than fair to say that we have arrived at this position rather unexpectedly, almost reluctantly. A reversal of the trend would at no time have caused surprise and such may still be in store for us. Certainly we have full personal knowledge that resection is technically far more difficult to perform than a suprapubic prostatectomy and that it carries its own peculiar dangers of catastrophe.

Our series is comprised of 443 resections on 382 consecutive patients. The admission status of these men differed in no essential way from the average for any like series handled in the past by prostatectomy. They presented with customary frequency the serious clinical problems created by neglected obstruction and infection in the urinary tract as well as by other important but unrelated diseases (Tables I and II). The vast majority were between sixty and eighty years of age. Sixty-two per cent carried a residual urine of 300 cc. or more and one-half had complete retention. Cancer was demonstrated for approximately 15 per cent and with the usual incidence of metastases. One the bases of renal function, changes in the cardiovascular system, the state of nutrition and strength, accompanying conditions, mental outlook and age, we have tried to grade the patients as surgical risks. A little less than two-thirds were rated as good risks, the remainder fair to poor (Table I). There was no selection of better risk patients for resection; if anything the opposite was true.

TABLE I
ADMISSION STATUS

Age		Residual Urine	
45-59	60	Retention	186
60-69	172	0-99 cc.	50
70-79	127	100-199 cc.	51
80-89	21	200 cc.—up	78
90-93	2	No record	17
Rating as Surgical Risks		**Type of Gland**	
Good	222	Benign	326
Fair	131	Malignant	56
Poor	29		

TABLE II
ACCOMPANYING CONDITIONS ON ADMISSION

Vesical Diverticula	20	Tumor of Bladder	2
Anemia	17	Duodenal Ulcer	2
Vesical Calculi	16	Leukemia	1
Syphilis	10	Cancer of Stomach	1
Epididymitis	10	Pernicious Anemia	1
Myocardial Insufficiency	8	Urethral Stricture	1
Hydronephrosis	7	Cancer of Rectum	1
Diabetes Mellitus	4	Epithelioma Penis	1
Renal Calculi	3	Pulmonary Tuberculosis	1
Aortic Stenosis	1		

The vital importance of adequate and proper preparation of the prostatic for operation is universally recognized and the principles of the regimen are soundly established, certainly in the practice of competent urological surgeons. This is not the time and place for a restatement of these principles. Suffice it to say that the pre-operative care of our patients coming to resection has been identical with that of those

*From the Department of Urology, University of Virginia.

Read at the sixty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 4-6, 1938.

†Dr. Neff has died since this paper was read.

coming to prostatectomy. As a matter of fact, the decision as to whether a given obstruction should be cared for by resection or prostatectomy has not been made until the patient has been gotten in sufficiently good shape to warrant whichever procedure seemed indicated. The period of preparation in the hospital

TABLE III

COMPLICATIONS DURING PERIOD OF PREPARATION

Pyelonephritis	39	Paroxysmal Tachycardia	2
Epididymitis	11	Pleurisy	1
Auricular Fibrillation	5	Coronary Occlusion	1
Femoral Thrombosis	3	Heart Block	1
Acute Arthritis	2	Alkaline Cystitis	1
Prostatic Abscess	1		

was five days or less for forty-nine patients, two to three weeks for 103, three weeks or more for 149. Quite apart from a slow return of adequate renal activity, various complications necessitated prolonged pre-operative treatment (Table III).

Preliminary drainage was had by all save ten of the series, 391 by an indwelling urethral catheter, thirty-three by intermittent catheterization, nine by a cystostomy. Thirty-nine were decompressed. We continue to feel that this step may be a life-saving contribution for a small but definite number of patients. The men resected without preliminary drainage had normal kidney function, were in good general condition and the urine was free of infection. For them no attention was paid to even a large amount of residual urine. This represents a departure from the routine use of drainage whenever there was considerable residual no matter how good the systemic and renal status of the individual. We find ourselves more and more inclined to omit preoperative drainage under the conditions stated.

Cystoscopy, prior to resection, has been done in almost 100 per cent of these men. In fact, the cystoscopic findings have largely determined the choice between resection and prostatectomy. Inspection of the bladder and prostatic urethra and the equally valuable palpation of the gland through the rectum upon the contained cystoscope, have furnished the most accurate estimate of the size of the gland and of the feasibility of a resection. Additional and necessary information has been obtained about the bladder itself. Papillary carcinoma, for example, was found in two patients, vesical calculi in sixteen and diverticula in twenty. True it is that the presence of most, but not all, stones was shown in previously made X-ray films. The direct views of the calculi, however, were peculiarly helpful in deciding whether litholapaxy could be wisely combined with a resection. We have made cystograms only after finding diverticula and then for the purpose of demonstrating their size and the extent to which they retained urine when the bladder was emptied. We have had no experience with the diagnostic use of urethrograms either before or after resection.

The choice between prostatectomy and resection has been relatively easy for the large majority of these patients. Obviously the so-called bars, the fibrotic glands and the hypertrophies of moderate size were ideally suitable. It needs to be said, however, that no prostates require a more careful operation than these. A surprisingly small amount of remaining tissue may seriously mar the result and, on the other hand, one may get tragically off-side if over zealous with the cutting loop. The margin of safety may truly be quite thin.

For larger glands resection has been employed where we felt that, in approximately an hour, that mass of tissue could be removed which would amount to doing an instrumental prostatectomy. Thirty grams or less were removed from 260 patients, thirty-one to seventy grams for seventy-two (Table IV). Inaccuracy of our original estimate or technical difficulties causing discontinuance of a resection before completion, have forced us to do a fair number of secondary resections. Only in the exceptional instance, however, have we planned multiple resections from the start.

Carcinomatous glands causing obstruction have been resected when this was technically possible. Some of them naturally have had to be resected a second or even a third time after varying intervals. Even so, the men of this group have had notably greater comfort than similar patients for whom a permanent cystostomy has been established. So far we have seen no evidence of the operation stimulating the cancer to more rapid growth and we have had patients go four years with minimal vesical disturbance even though the cancer was extensive when operated upon. Palliative radio therapy has, of course, been utilized for many of these malignant prostates.

A certain group of poor-risk patients deserves mention. These were men having benign, relatively small glands whose condition precluded consideration of a prostatectomy. The choice lay between a cystostomy and a resection. We have successfully

resected many of them with little more reaction than after a cystostomy. Two outstanding examples in this group were patients operated upon over fifteen months ago at the respective ages of ninety and ninety-three. They are still alive and enjoying good vesical function.

Vesical calculi or diverticula usually have not prevented a resection of prostates otherwise suitable. Small stones have been removed through the resectoscope, larger ones readily crushed and evacuated at the same sitting or a later one. None of the twenty patients with diverticula have so far required subsequent attention therefor. With the adequate drainage afforded by the removal of the obstructing prostate, vesical function has become satisfactory. Cystograms made at intervals for some of these patients have demonstrated a striking shrinkage in the size of the diverticulum after prostatic resection.

All resections have been done under either spinal or sacral anesthesia (Table IV). Our preference is distinctly for the latter. The percentage of failures has been slightly higher with sacral, but these have been no significant ill effects and the immediate post-operative course on the average has been definitely less disturbing. For the lack of a better explanation, we have attributed two instances of severe shock to the use of spinal. In addition, patients done under a spinal anesthetic have, in general, caused us more concern during the first thirty-six hours than those under sacral.

TABLE IV

METHOD OF ANESTHESIA

Spinal	141	Failures	4	Ill Effects	2
Sacral	241	Failures	10	Ill Effects	0

QUANTITY OF TISSUE REMOVED

1-10 gms.	90	31-40 gms.	38
11-20 gms.	110	41-50 gms.	18
21-30 gms.	60	51-70 gms.	16
No Record	50		

PERIOD OF HOSPITALIZATION AFTER RESECTION

1-3 days	10	8-14 days	137
4-7 days	164	15 days and up	54

This is not the fitting occasion to discuss the technique of a prostatic resection in great detail but out of our experiences, particularly the unfortunate ones, we feel it wise to emphasize certain features. All necessary equipment should be on hand in duplicate and in good working order. Any essential part may fail miserably at a critical moment and the set-up should permit prompt replacement without jeopardizing the patient's welfare. Our operations have been done solely with the McCarthy resectoscope. For activation of the loop, we prefer a machine which delivers tube current for cutting and the damped current from a built-in spark gap unit for coagulation. This combination has proven more efficient than any other we have tried.

Good vision and complete orientation must be maintained throughout the operation. There must be no blind cutting and no excision at the vesical neck with the bladder undistended. At the same time, the cuts should be made rapidly and bleeding from small vessels ignored provided satisfactory vision is possible. The larger vessels are encountered as the prostatic capsule is approached and coagulation of them must be thorough. All obstructing tissue from the level of the verumontanum to the vesical outlet should be removed. The irrigating fluid should be practically clear and the bladder entirely free of resected tissue before the patient is returned to the ward.

In this series the bladder has been perforated four times, once beyond the interureteral bar and, in three instances, at the juncture of the bladder and prostate. Three of these patients died. Seriously troublesome hemorrhage during a resection has occurred in twenty-two patients. One some occasions control of such bleeding has so delayed the operation that the resection had to be completed at another session. When any state approaching shock has developed, the operation has been promptly discontinued after meticulous coagulation of bleeding points.

It is our matured judgment that prostatic resection is one of the most difficult urological operations and that it should never be undertaken by the inexperienced or occasional operator. The problem of train-our junior assistants in its performance has been a trying one. This we have solved reasonably well by having them sit in on a goodly number of resections by senior members of the staff and during their residency undertake resections on increasingly difficult glands under constant scrutiny and direction. The majority of the resections reported in this series were done by successive residents in the department.

The post-operative care of the resected patients can be suggested only in outline. It has required the same unfailing attention to innumerable details as during the period of preparation.

A closed, sterile irrigating system, with separate leads to reservoir and bedside receptacle from a Y

tube attached to the large indwelling catheter has been set up promptly, the patient was returned to bed. Alternate release of clamps upon the tubes for inflow and outflow has permitted ready irrigation by the nurse at such intervals as were necessary to prevent occlusion of the catheter with clots. Usually after twelve or twenty-four hours the drainage has been quite clear and the catheter has customarily been removed on the third, fourth or fifth day and left out, provided the patient emptied his bladder satisfactorily. Upon undue bleeding, either early or late, the patient has promptly been brought to the cystoscopy room, the clots evacuated and bleeding points coagulated. After any resection one cystoscopy room has been kept ready for use on short notice. Hemorrhage after some of the earlier operations was controlled by opening the bladder and placing a Pilcher bag in the prostatic bed. This radical method has been unnecessary during the last four or five years. Serious shock, frequently associated with hemorrhage, has been met in eleven of the patients. This has been combated in accordance with the particular clinical picture for each incident. Transfusions have been invaluable not only in these emergencies but in many other situations created by various other complications, listed and unlisted, which space will not permit discussing (Table V).

TABLE V

POST-OPERATIVE COMPLICATIONS

Pyelonephritis	19	Congestive Failure	2
Hemorrhage	15	Coronary Thrombosis	1
Shock	11	Mesenteric Thrombosis	1
Epididymitis	11	Perforation Duodenal Ulcer	1
Periurethral Infiltration	5	Gangrene Corpus Spongiosum	1
Extravasation Urine	4	Pelvic Cellulitis	1
Pnuemonia	4	Femoral Thrombosis	1
Auricular Fibrillation	3		
Erysipelas	3		
Pulmonary Infarct	1		

Notwithstanding many serious complications, the post-operative course of the large majority of the resected patients has been remarkably smooth. The average maximal temperature after operation for the whole series was 101.6°. Forty-five per cent of the 365 survivors were discharged within a week or less, slightly over 80 per cent within two weeks. This compares most favorably with the average period of confinement after a suprapubic prostatectomy. We would be most happy could we anticipate having one-half of our patients, after prostatectomies, ready for discharge within three weeks.

Two or more resections have been required for 14.4 per cent of the whole group. As indicated earlier in this paper, these multiple resections have usually been forced upon us and not planned. When the bladder has not emptied adequately after the indwelling catheter was first removed, this has been replaced for a longer period of drainage. Explanation for a continued unsatisfactory function has been sought by cystoscopic investigation. Obstructive tissue so demonstrated has usually been removed within two weeks. The reaction after most of these secondary resections has been as smooth as after the first but for some has been very severe indeed. We are convinced that three or four deaths were directly attributable to repeated resections and think it probable that these patients might have recovered had an original prostatectomy been done. Late secondary resections have been performed for eight patients. Two of these had cancer and the necessity for a second operation was not unexpected. The others had had their original resections from 1932 to 1934 and returned after a period of months or years because, out of our inexperience, the first operation had not been sufficiently radical.

Seventeen patients died after resection (Table VI). The deaths due to perforation of the bladder were obviously caused by technical errors and should have been avoided. Those attributed to hemorrhage and shock were at least theoretically avoidable. The others corresponded to inescapable hazards of surgery for the elderly prostatic. We doubt whether we can materially better the mortality rate of 4.45 per cent in the years ahead. (It is noteworthy that the rate for the 150 patients over seventy years of age was exactly 4 per cent.) The mortality figure for a numerically equal series of prostatectomies was almost double that for resections (Table VI). This advantage for resection is a compelling argument in favor of this operation, provided equally good results are obtained.

In a paper presented before this Society several years ago we used certain arbitrary criteria in an attempt to grade the results for patients surviving prostatectomy or resection and have followed the same methods again. The rating "Good" has been given whenever bladder function has been essentially restored to normal. Where there have been such single features as a residual urine of 30-50 cc., a heavy infection, a slight amount of incontinence or an undue frequency, and yet the result has fundamentally been a good one with promise of better func-

TABLE VI

IMMEDIATE CAUSE OF DEATH

Pyelonephritis	3	Perforation Duodenal Ulcer	1
Perforation Bladder	3	Pelvic Cellulitis	1
Hemorrhage and Shock	3	Pulmonary Tuberculosis	1
Pneumonia	2	Mesenteric Thrombosis	1
Coronary Thrombosis	1		
Radical Proctectomy	1		

COMPARATIVE MORTALITY RATES

382 Consecutive Prostatectomies	8.12%
382 Consecutive Resections	4.45%

COMPARATIVE RESULTS FOR PATIENTS DISCHARGED

	Good	*Satisfactory*	*Poor*
After Prostatectomy	83.7%	13.7%	2.6%
After Resection	75.2%	21.7%	3.1%

tion later, we have classed the result as "Satisfactory". The results have been called "Poor" for larger residual, incontinence of urine, marked difficulty in voiding, persisting suprapubic fistula, distressing frequency of urination, and so on. The classification has been based on each patient's condition at the time of discharge from the hospital or that ascertained at an early follow-up examination. The functional results after prostatectomy were derived from the study of 247 case histories (Table VI). We do not believe there would have been any significant variation had the series exactly matched in number that of the resections. The net result of the comparison of functional results after prostatectomy and after resection has been to show no significant difference between the two groups.

In concluding this report on our experiences with prostatic resection during the last six years, we feel impelled to emphasize the outstanding impressions that we have formed and which will guide us in the future:

1. Resection is far more difficult to perform than a suprapubic prostatectomy and should be undertaken only by those adequately trained.

2. Preparation of the patient before resection is just as necessary as before prostatectomy.

3. Only those patients should be resected for whom, preferably at one sitting, that volume of tissue can be removed which amounts to doing an instrumental prostatectomy.

4. Patients with obstructive cancer of the prostate are much more comfortable after a resection, when technically feasible, than after a cystostomy.

5. Approximately 90 per cent of operable prostatics can in our hands, be handled by resection and will obtain equally good functional results in a shorter time and with a lower mortality than after prostatectomy.

DISCUSSION

DR. AUSTIN I. DODSON, Richmond: Several years ago, after doing very few resections, I stated before this organization that this method of treating prostatic hypertrophy had a very definite place in urological surgery, and that its usefulness would be determined by individual operators, insofar as they themselves were concerned.

Time has pretty well borne out this statement. Unfortunately, at first the method was over-advertised, and it was pushed by instrument makers and by those who were over-enthusiastic—not so much as to the value of the procedure, because that has been well proved, but to the fact that the procedure was a minor one, as compared with open prostatectomy.

I think it has been shown that, as compared with open prostatectomy, it is a minor procedure in properly selected cases. I believe, when carried out by competent men, it does carry a lower mortality, when those men with very large hypertrophies are eliminated.

I want to say one or two things about the preparation of patients. Doctors Neff and Kirby state that the preparation is exactly the same as for prostatectomy and that is as it should be. I occasionally have a patient come in who has been told that he can have a resection the next day and return home in a few days. Physicians at large should learn that this is no more possible with resection than with prostatectomy and it should not be promised a patient who has not had the opportunity of urological examination that this or that can be done,—causing disappointment of the patient and some embarrassment to the urologist.

Preparation of a prostatic patient begins with the doctor who first sees the patient. With a patient who has been brutally catheterized and traumatized and infection set up before he reaches the hospital, there may result a long pre-operative period and sometimes a fatal outcome. So, preparation begins with the doctor who sees the patient first, and the manner in which he treats the patient frequently determines the course the patient is going to take when he reaches the hospital. I think the sooner we get a general understanding among all doctors that gentleness and cleanliness are the most important details, the better.

As to the anesthesia, I have used spinal anesthesia in most of my cases. I have found that the continuous administration of glucose during the operation has helped a great deal in the use of spinal anesthetic and has prevented the low falls in blood pressure, shock and other bad results that may occur from the use of spinal anesthetic and it has permitted me to send the patient back to his room in better condition generally than before this method was used.

Since using glucose continually, I don't recall when a spinal anesthesia has given me concern. This was put into effect because of the fact that a patient died on the stretcher on the way to his room. He left the operating table with a pressure of 110, but this man's normal blood

pressure was 220 and particularly in a patient who carries a high blood pressure, the fall of 100 mm., even though it remains above 100, is a matter of concern to that patient.

I am glad that attention was called to the fact that adequate tissue must be removed—that practically a proctectomy must be done to insure results. At first men talked of cutting grooves and making a channel and it was said that a certain amount of shrinkage took place, so that not so much had to be removed to give results. In my practice I have not found this to be the case. There is no more shrinkage in resection than from drainage of the bladder. From time to time, in trying to prepare a patient in the office, I have irrigated and massaged and treated myself out of an operation; the patient would obtain a certain amount of relief and refuse operation. Shrinkage of the prostate does not result from a resection and all obstructing tissue must be removed if results are to be obtained.

Insofar as post-operative care is concerned, this differs in no essential from that which has already been reported. However, after the catheter has been removed, if the patient's residual is not diminishing, we go back and remove more tissue.

I find that after the catheter has been removed, if we replace the catheter at night, giving the patient a good night's rest and take it out the next morning, enabling him to walk around the hospital and empty his bladder at will until pronounced bladder irritability has subsided, convalescence is hastened.

I have certainly enjoyed this paper. It presents the status of this subject in the hands of the best clinicians and it determines what I believe will be the place of transurethral resection in urological surgery.

DR. M. H. TODD, Norfolk: May I ask a very elementary question? In acute retention of the urine in a patient who has had a large bladder for a long time, is it wise to empty the bladder at once, or is it better to decompress slowly?

DR. DODSON: I meant the intravenous use of glucose, using five per cent glucose in normal saline or Ringer's solution, the rate of flow regulated according to the blood pressure, to keep the blood pressure at what is normal for that individual.

DR. LINWOOD D. KEYSER, Roanoke: This interesting paper prompts me to review some of my own experiences with prostatic resection. About 1926 I began using the Caulk cautery punch in a small series of cases with median lobe obstruction. Bumpus' modification of the Braasch punch was developed and with it I began removal of lateral and median lobe tissue with satisfaction. When the McCarthy Stern instrument appeared and was popularized by Davis, I adopted this instrument for use in most cases. Our series of cases now runs over seventy, small to be sure; but it has afforded a varied experience. After sixty-four successful resections, the four deaths came in succession, one from pulmonary embolism on the fifth day, a second from coronary heart disease in the fourth week after protracted hiccough and hemorrhages at repeated intervals, a third from uncontrollable hemorrhage from a soft fungus adenomatous gland, and the fourth from cerebral hemorrhage three days after operation. These deaths occurred in feeble old men and in retrospect seem to have been hardly avoidable.

Sepsis has not been troublesome. Late bleeding has been a factor of considerable moment in five cases. One patient started profuse bleeding in the third week after operation. After temporary control for several days at a time, hemorrhage would recur with alarming proportions, requiring multiple transfusions and finally secondary coagulation of the prostatic bed for control. Usually late bleeding is controlled by catheter and compression to the perineum and more recently by the introduction of a hemostatic bag.

We have not yet had to do secondary resection, although several patients might have had a better result had this been done.

One case of slight but definite urinary extravasation posterior to the triangular ligament recovered on catheter drainage alone. The largest amount of tissue removed has been 46 gm. The longest operation took about two and one-half hours, too long to be sure. I feel that after one hour, if not enough tissue has been removed, hemostasis should be carried out and the operation ended.

We have a predilection for transacral rather than spinal anesthesia, especially in the infirm, let us say "rickety" old man. Incontinence has not marred our series to date. Hospitalization has averaged two weeks. This could have been shorter as a rule except for the fact that many patients lived in remote districts and we feared to allow their return home until the danger period of secondary hemorrhage had passed.

I wish to emphasize certain principles in the technique of resection which I have found of value.

1. Take time to have the patient in the best possible physical condition.

2. Determine routinely the coagulation time.

3. Resect each lobe systematically and completely, attending to hemostasis as you go. The portals of entry of blood supply should be coagulated after the technique of Davis. Cut cautiously in the floor of the prostatic urethra. The subjacent venous plexus bleeds freely, requires much coagulation for control and it is in this area that I have found late bleeding when the slough separates.

4. Try to have the urine as clear as possible before applying the indwelling catheter. I have used hemostatic bags only occasionally. Their introduction scours the prostatic bed, provokes more bleeding temporarily and often causes severe pain.

5. Keep the patient on the operating table or on an adjacent bed for fifteen to twenty minutes after inserting the catheter to determine the degree of immediate bleeding. If this is excessive, sufficient anesthesia will usually be present to allow reintroduction of a resectoscope and coagulation of bleeding points.

6. Drape the patient and bring the catheter through a perforation in the drape sheet so that a nurse attendant can observe the patient without embarrassment and irrigate the catheter at frequent intervals for a six-hour period, re-

moving clots and noting the appearance of excessive bleeding.

DR. B. E. HARRELL, Norfolk: I would like some information, and would like some comments from the essayist and from Dr. Neff if he is here. First, I would say that I have had no such series as Dr. Neff and Dr. Kirby. To date, we have had 120 to 130 of these resections.

In the beginning I was thoroughly dissatisfied with resection. I would have been happy if all these instruments could have been thrown overboard, because we had reached the point where we felt that with open operation we could take out the prostate of almost any man that was still breathing.

In our series we have had seven deaths. Most of these occurred in the early years when we were still in the first grade; but we persisted, and last year, in around fifty cases, had only two deaths,—one in a man who had had three strokes and still insisted on operation, said he was willing to take the chance. Well, he lost,—he had another stroke. So far this year we have had no death.

In the early part of the game, we found that we, like every other resectionist, had to repeat operations. We were very much surprised to find that the repeat operation was comparatively simple. For instance, take the case of a man who at the first operation had had considerable hemorrhage, a sharp post-operative rise of temperature—a rather stormy time,—and then you find that you have to go back for further resection. That second resection is simple, there is little or no bleeding, only a slight rise in temperature, the whole course is smoothed out,—and we got to wondering why.

In 1934 Kirwin was toying with the idea of applying heat to the prostate to produce shrinkage. In 1935 two men from Kansas City, Smith and Stockwell, conceived the idea of running over the prostate lightly with the fulgurating current and then doing the resection at a later date. They report 125 cases without a death. Following this procedure there is a slight rise of temperature, usually 99 to 100, which subsides in three or four days. Then you go back and do the resection; you have reduced this patient to the status of a repeat operation. There is very little bleeding; instead of generalized tissue ooze, the worst you have is isolated bleeding points which you can easily control. The post-operative course is remarkably smooth. The time consumed in both procedures is probably less than would be required for resection alone. The time consumed in the resection is usually remarkably short and frequently we can go through without using coagulation at all.

We have done twenty to thirty cases in this manner. There have been no repeats, there has been no death in this group, and, as I said, the whole course has been remarkably smooth. There have been no complications that I can recall.

Occasionally we find that following this preliminary coagulation the patient can void as well as ever.

I should like to have some discussion of this idea. I should like to know what Dr. Neff and Dr. Kirby think of it, and whether anyone else has had experience with it.

DR. JOHN H. NEFF, University: I had planned to take no part in this discussion, but to turn it over entirely to Dr. Kirby, who had done all the work.

I am like Dr. Harrell,—I can't recall the name, but I think the doctor he referred to was a doctor from Knoxville, Tenn.

I have seen some secondary resections which were much simpler, with less bleeding, and then I have seen some in which there was even more bleeding on the second than on the first, and I am sure we have killed a number of people on account of ill-advised resections in multiple stages, when one good clean resection would have saved their lives. That doesn't answer your question, but there it is, for what it is worth.

DR. KIRBY, closing the discussion: Some of these points were left out of the paper intentionally, to save time. About the anesthetic: In 141 patients we used spinal, and in 241 sacral was used. Spinal anesthesia has caused us considerable concern in a number of patients, particularly for the first twenty-four or thirty-six hours after resection. Sacral anesthesia has caused no concern, and in our hands this seems to be the most satisfactory. Now the question about the chronically distended bladder,—of course, there are some urologists who drain it promptly; others will decompress it. It is our feeling that it is a life-saving procedure in certain individuals who have chronically distended bladders, and we suggest decompression. I want to thank Dr. Dodson, Dr. Todd, Dr. Keyser, Dr. Harrell, and Dr. Neff for their discussions.

HEMOCHROMATOSIS—A STUDY OF THREE CASES.

NATHAN BLOOM, M.D.,
Richmond, Virginia.

The syndrome of hepatic cirrhosis, pigmentation of the skin and glycosuria, was first described by Hanot and Chauffard in 1882[1] and called "bronzed diabetes". Although a comparatively rare condition, being encountered in three out of 106,000[2] cases at John Hopkins and in four out of 5,000 autopsies at Bellevue,[3] it still is deserving of our diagnostic acumen. Individuals who contract this malady usually do not seek medical advice until the disease is in its late stages and at this time there is no difficulty in its recognition. The peculiar iron-gray color of the skin, especially in the folds and about

the face, hands and feet, the enlarged, hardened liver and spleen, with ascites and glycosuria, are characteristic of no other condition.

In the past seven years, two cases were encountered out of 50,000 admissions to the Hospital Division of the Medical College of Virginia. A third case was observed outside of the hospital. The purpose of this study is to describe these cases with their autopsies and to reiterate the simple laboratory methods of diagnosis with a logical plan of treatment.

Case I.—Mr. A. N., a forty-three-year-old male, was admitted to the hospital in November, 1931, complaining of expectoration and vomiting of blood. The first attack occurred two months before admission. At that time the amount of blood lost was negligible. In this attack, the patient lost approximately 500 cc. of blood. He had been in fair health for the past several years, but five years ago noticed a beginning discoloration of his skin. This was most apparent over the exposed surfaces of his body. The patient had been in the employ of a local gas plant for twenty-five years but most of his work was out-of-doors. He would drink alcohol occasionally but not in any large amount. There was no family history of a similar condition.

Physical Examination

A weak, malnourished elderly, white man, lying flat in bed and without pain. The entire body was covered with a peculiar, purplish-gray pigmentation. The pigmentation was most pronounced in the folds of the skin. The mucous membranes were pale but normal in appearance, without pigmentation. The eyes, ears, nose and throat were normal. The chest and lungs were normal. The heart was not enlarged, the rate and rhythm were normal, and the blood pressure was 118/70. The abdomen was not distended and a firm liver was palpated four centimeters below the right costal margin. A firm spleen was also palpated three centimeters below the left costal margin. The extremities and reflexes were normal.

Laboratory Data

Urine—specific gravity 1.035; albumin negative; strongly positive for sugar and a slight trace of acetone. .

Blood—red blood count 3,640,000; sahli hemoglobin 64 per cent; white blood count 5,100, with 53 polymorphonuclear neutrophils, 1 eosinophil, 42 lymphocytes, 1 monocyte and 3 myelocytes. Diameter of red blood cells 8.2 microns. Wassermann negative. Blood sugar 260. N. P. N. 40. Icteric index 13 units.

Course in Hospital

The patient stopped expectorating blood after forty-eight hours in the hospital. A gastro-intestinal X-ray examination was negative. A skin biopsy revealed iron-containing pigment about the small blood vessels and sweat glands within histiocytes and fibroblasts. This was considered diagnostic of hemochromatosis. The patient was placed on a high carbohydrate diabetic diet with insulin. He was discharged after remaining in the hospital three weeks, with some improvement in his diabetes and with no recurrence of his hematemesis.

Readmission

The patient returned to the hospital in March, 1932, after having become progressively weaker and lost weight. He complained of pains about his chest and rapid heart action. The examination at this time was essentially the same as on the previous admission, except that now the patient was orthopneic, the heart rate was 200 but regular, there was a moderate ascites and slight swelling of the ankles. An electrocardiogram revealed paroxysmal auricular tachycardia. The urine was strongly positive for sugar and acetone and the blood sugar was 306. The patient rapidly grew weaker and lapsed into a semi-coma, finally succumbing twenty-four hours after admission.

Post-Mortem Examination

Gross Description: Body length 175 cm.; weight 80 kg. Diffuse gray pigmentation of skin, darker with bronzing about genitalia. Mucous membranes pale. No edema.

Thorax: Diffuse distribution of fibrous adhesions in right pleural cavity, few posteriorly in left. No exudate or increased amount of free fluid. Right lung 440 grams, left 390 grams. Both diffusely aerated except for narrow zones of atelectasis at bases. Brownish cast to cut surfaces. Bronchial tubes and blood vessels grossly normal except for mucus in larger bronchial tubes of right lung. Trachea and bronchi grossly normal. Tracheo-bronchial lymph nodes anthracotic; otherwise not remarkable.

Heart, 390 grams. Pericardial fluid normal in amount and character. Epicardium smooth with few thin flat white fibrillar plaques. Moderate hypertrophy of right auricle with areas of hemorrhage on

its epicardial surface. Left ventricle 15 mm. thick at base. Myocardium and endocardium homogeneously grayish-brown. Masses of coagulated blood lightly adherent to apical left ventricular endocardium. Valves grossly normal, except for fenestration of pulmonary and slight thickening of aortic with ridge-like plaques along line of closure. Coronary arteries grossly normal. The aorta presented large plaques without calcification or ulceration in lower thoracic portion.

Abdomen: Three to four liters of clear fluid. Fibrous peritoneal adhesions, generalized, but especially marked and dense in upper right quadrant. Gallbladder removed at operation in past.

Esophageal mucosa just above cardia presented two, 2 to 3 mm., ulcerations; a probe introduced into one entered a vein of moderate size. Stomach and intestines filled with blood; otherwise not remarkable. Mesenteric and retroperitoneal lymph nodes moderately enlarged and dark brown in color. Pancreas normal in size, brown, fibrotic, with cut surface throughout length mottled bright brown and gray.

Liver, 2350 gms., fairly homogeneous, moderately soft. Indistinctly mottled, gray and brown. Capsule and trabeculae not appreciably thickened; capsule somewhat wrinkled. Malpighian corpuscles not recognizable.

Adrenal glands grayish brown.

Right kidney 220 gms., left 230 gms. Both otherwise grossly normal except for irregular and poorly demarcated cortical striation. Pelves, ureters and bladder grossly normal.

MICROSCOPICAL DIAGNOSIS

1. *Lungs.* Dense deposits of hemosiderin and of carbon in histiocytes of thickened perivascular and peribronchial connective tissue, in alveolar walls, and in thickened pleura; also in phagocytes within alveoli.

2. *Tracheobronchial lymph glands.* Marked pigment deposition.

3. *Aorta.* Syphilitic aortitis.

4. *Heart.* The thrombus at left apex is partly organized. Pronounced pigment deposition in muscle fibers; marked vacuolation and fibrillar lysis in foci. Narrow subepicardial zone of chronic interstitial inflammatory response, proliferative, in myocardium.

5. *Stomach and intestines.* Pigment deposits, light, in mucosal epithelium.

6. *Mesenteric lymph glands.* Pigment deposition in phagocytes of reticulum.

7. *Pancreas.* Markedly atrophic and fibrotic with marked pigment deposition in epithelium of ducts and acini; islets less extensively involved.

8. *Liver.* Advanced pigment cirrhosis. Portal vein distended.

9. *Spleen.* Moderately marked fibroblastic proliferation in pulp; deposits in arterial walls.

10. *Kidney.* Very little pigment, chiefly in tubular epithelium. Toxic nephrosis; passive congestion.

11. *Bladder.* Essentially normal.

12. *Adrenals.* Marked pigment deposition in zona glomerulosa of cortex.

ANATOMICAL DIAGNOSIS

Hemochromatosis, generalized, with advanced pigment cirrhosis of liver and of pancreas; hemorrhage from ruptured esophageal varices; ascites; myocardial hypertrophy; areas of atelectasis in lungs.

Case II.—Mr. W. S., a white male, fifty-eight years old, was admitted to the hospital in December, 1934, complaining of a sore throat. He had worked in a malarial district for many years and intermittently developed bouts of fever. For the past year he had noticed a gradual change in the color of his skin but thought it was a natural process. There was no family history of any similar condition. His sore throat had started insidiously and at times there was difficulty in swallowing.

PHYSICAL EXAMINATION

A grayish, slate-colored, elderly white male, with purplish-tinged lips and tongue, lying flat in bed and not complaining of any pain. The pharynx was injected and several cervical lymph nodes were palpated. The chest and lungs were normal, the heart was not enlarged, the rate and rhythm was regular and the blood pressure was 138/80. A firm, nodular, non-tender liver was palpated, extending six centimeters below the right costal margin. A firm spleen was also felt extending three centimeters below the left costal margin. The extremities and reflexes were normal.

LABORATORY DATA

Urine—negative for sugar.

Blood—red blood count 3,520,000; sahli hemoglobin 80 per cent; white blood count 4,950, with 50 polymorphonuclear neutrophils, 2 polymorphonuclear basophils, 48 lymphocytes. Wassermann negative. Sugar tolerance: Fasting—100 mgs., half-

hour—161 mgs., one hour—190 mgs., two hours—236 mgs., three hours—258 mgs.

COURSE IN HOSPITAL

An X-ray of the chest was negative. A skin biopsy revealed iron-containing pigment chiefly in the histiocytes about the sweat glands. This was considered diagnostic of hemochromatosis. The patient's throat improved and he was discharged within a week.

READMISSION

The patient returned to the hospital in May, 1935. His throat had become progressively worse and he could swallow nothing but liquids. He had lost much weight but the examination was essentially as on the previous admission. Fluoroscopy of the pharynx and esophagus after the injection of a barium mixture demonstrated a narrowing of the lower pharynx and upper esophagus. An esophagoscopy was performed and a mass was found at the entrance to the esophagus which bled very easily. A section from this mass revealed a hemangio-endothelioma. The patient improved after this procedure and was discharged two months later.

READMISSION

In August, 1935, the patient reentered the hospital complaining of gradual enlargement and painful swelling of the right side of his neck. He became rapidly weaker, developed a temperature reaction and cough and succumbed eleven days later.

POST-MORTEM

Gross Description: Body is that of a fairly well developed, poorly nourished, elderly white male, 180 cm. in length. Dependent lividity is present but only slight post-mortem rigidity of the lower extremities. The upper portion of the body is still slightly warm. The pupils are round, equal and 0.5 cm. in diameter. The skin is a greenish-yellow over the entire body; a large area of ecchymosis on the dorsal surface of the right forearm; the skin over the legs, particularly the lower legs, is roughened, thickened, desquamating and pigmented a dark brown. The mouth is dirty, teeth absent and there are numerous petechiae under the tongue which is heavily coated with a greenish-yellow mucus, which also fills the nostrils. A small amount of bloody fluid exudes from the mouth when the head is turned to the side. The abdomen is scaphoid. There is a reddish excoriation of the skin of the scrotum. Anterior cervical nodes are palpable and firm and the larynx is prominent but no other masses are felt in the neck.

Thorax: There are fibrinous and fibrous adhesions over both lungs but particularly at the apices and over the left lung where the adhesions are older. There is about 50 cc. of blood-tinged fluid in each pleural cavity. Pericardial sac contains the normal amount of clear straw colored fluid.

Lungs: The right lung weighs 1,100 grams and left 800 grams. Both lungs are heavy, darkly colored and covered with fibrous tags. Both lungs are lightly adherent to the diaphragm. There is almost universal consolidation of the right upper, right lower and left lower lobes with involvement also of the remaining lobes. There is apical emphysema on the left. Cut surface of both lungs is very moist in areas and varies in color from a deep red to a grey. The surface is granular in areas. Hilar nodes are somewhat enlarged, firm and black. The trachea and bronchi are filled with a mucopurulent, blood-tinged material. Pulmonary vessels are patent throughout. There is an esophageal-tracheal fistula which will be described in detail below.

Heart: Weight 350 gms. Myocardium is flabby and brownish-grey, coronary vessels are patent throughout and in remarkably good condition for the age of the patient. Endocardium and valves are grossly unremarkable except for a large vegetation on one of the cusps of the aortic valve; this vegetation is yellowish in color, not friable and is 1 cm. in length, 4 mm. in breadth and elevated about 3 mm. from the surface of the cusp. There is a milky patch about 1 cm. in diameter on the surface of the left ventricle.

The larynx is clear but there is a communication between the trachea and the esophagus about 1 cm. below the lower border of the cricoid cartilage. Both the edges of the tracheal opening and that of the esophageal are black, necrotic and extremely friable, as are the cervical tissues for a large area surrounding the perforation of the esophagus. No mass is noted in the esophagus and it is questionable as to how much of the changes in the neck tissues is due to post-mortem alterations. However, there is very little evidence of infection in the surrounding tissues and no masses are demonstrated. The remainder of the esophagus and trachea below the area described are in good condition. Cervical nodes removed for examination.

Abdomen: Panniculus is scanty and the omental fat is also very slight in amount. The diaphragm

stands at the fifth rib on the right and sixth rib on the left. Neither the liver edge or that of the spleen extends below the costal margin. The intestines and stomach are all darkly discolored but not friable. There is no fluid in the peritoneal cavity.

Liver: Weighs 2,200 gms. and measures 26x24x8 cm. The surface is brownish-green, rough, cirrhotic. The omentum is adherent to the lower margin. Cut surface shows peculiar dark brownish color with lighter yellowish-brown areas. There is very evident cirrhosis.

Gall-bladder is greatly distended with thin greenish-black bile and is filled with over thirty small, black, friable fascetted stones, remarkable uniformity in size, about .2 to .4 cm. The duct is patent, and the wall somewhat thickened.

Spleen: Weight 570 gms. and measures 19x13x5.5 cm. The organ is greatly enlarged, capsule a light grey, slightly wrinkled, thickened, and presents the white "zucker-guss" appearance in areas. The cut surface is reddish with grey streakings and firm except for slight softening of the pulp in areas where it scrapes away easily on the knife edge.

Stomach and intestines: Except for the dark discoloration mentioned above and a small firm nodule, submucosal, in the fundus of the stomach the gastro-intestinal tract is uninteresting from the gross standpoint. No blood is seen in the stomach, which contains a small amount of greenish-yellow material.

Pancreas: Is soft, indefinitely outlined and presents a peculiar brownish color of the liver.

Adrenals: Are both deep brownish in color, very friable and markedly degenerated.

Kidneys: The left weighs 200 and right 190 gms , 13x7x3.5 cm. The capsule strips with slight difficulity, leaving a somewhat congested, granular, and occasionally pitted surface in areas, which also presents some brownish pigmentation. Cut surface bulges; differentiation and markings are poor and cortex measures .7 cm. in its widest portion. There is some congestion and increased pigmentation. The changes are more marked in the right organ. The ureters, bladder and prostate are grossly unremarkable except for distention of the bladder with pungent brownish-green urine, and a slight hyperthrophy of median lobe of the prostate.

Aorta: Shows some loss of elasticity and atheromatous degeneration but the most noticeable alteration is a peculiar, greenish-brown pigmentation.

MICROSCOPICAL DIAGNOSIS

The tumor in the wall of the esophagus is a malignant hemangio-endothelioma (diagnosed by Dr. A. C. Broders) with marked secondary inflammatory infiltration.

Most of the organs show more or less marked deposition of hemosiderin pigment. No pigment is found in the intestinal tract and in the esophageal tumor. The organs which show the most massive deposition of pigment are the liver, spleen, heart muscle, and lymph nodes. It is remarkable that the kidney reveals only relatively scanty pigment.

The following observations deserve special description:

Heart: Massive deposition of iron is seen in the heart muscle fibers. In some of them it is situated in the sarcoplasm around the nucleus only. In others the granules are distributed over the entire heart muscle fibers. There is also rather marked pigmentation with lipofuscin.

Lung: Shows only a moderate amount of iron pigment in macrophages within the alveolar lumina.

Adrenal: The reticulo-endothelial cells throughout the cortex have taken up fine granular pigment. There is massive storage of iron pigment in the epithelial cells of the zona glomerulosa. The epithelial cells of the zona fasciculata and reticularis are free from iron pigment.

Kidney: The comparatively scanty amount of iron pigment is mainly deposited in tubular epithelial cells of the collecting tubules. A few tubules of Henle's loops show iron deposit also.

Liver: There is advanced metallaxis of liver tissue, i.e., formation of pseudo-lobules, increase of interstitial fibrous tissue with numerous new formed bile duct, and a moderate interstitial infiltration with small round cells. Liver cells and reticulo-endothelial cells are heavily laden with iron pigment. Fine granular hemosiderin is also found in the epithelial cells of the bile ducts.

Mesenteric Lymph Nodes: Contain a large amount of iron pigment in desquamated monocytes in the sinuses. Almost all reticulo-endothelial cells have taken up fine granular hemosiderin pigment.

Testis: Almost all the hemosiderin pigment is found in the endothelial cells of medium sized and large vessels. Only a very few scattered interstitial cells contain hemosiderin.

Anatomical Diagnosis

Hemochromatosis, generalized, with pigment cirrhosis of liver and generalized pigmentation of other viscera and skin; hemangio-endothelioma of the esophagus (diagnosed by Dr. A. C. Broders), with perforation of the esophagus and esophageal-tracheal fistula; mediastinitis; bilateral pleuritis with hemothorax; ulcerative endocarditis of the aortic valves; bronchopneumonia, bilateral; generalized arteriosclerosis; chronic cholecystitis and cholelithiasis.

Case III.—Mr. H. P., a white male, thirty-eight years old, was first seen in September, 1936. At that time he complained of general weakness, loss of weight, color changes of his skin, and frequency of urination. He had been in fair health up to a year ago, when he noticed that the least exertion produced general weakness. Although his skin had become slightly darkened in the past several years, it was now much more apparent, especially about his face, genitalia and feet. He was seen by a physician and told that he had diabetes. A strict dietary régimé was ordered by the physician, but the patient continued to lose weight and the discoloration of his skin was more pronounced. He began noticing swelling of his ankles and legs. He used alcohol sparingly and his work as a general contractor was mostly out-of-doors. There was no family history of any similar condition.

Physical Examination

A tall, weak, white male, with a peculiar, grayish-slaty, color of his entire skin. This color was most pronounced about the scrotum, axillae and feet. The mucous membranes were pale and not pigmented. There was slight congestion of the nose and throat. The chest was emphysematous and a few scattered rales were heard in the lung bases. The heart was not enlarged, the rhythm and rate were regular, the pulse was fifty-four and the blood pressure was 90/60. A firm, tender liver was palpated, extending four centimeters below the right costal margin. A firm, non-tender, spleen was felt, three centimeters below the left costal margin. The extremities and reflexes were normal.

Laboratory Data

Urine—specific gravity 1.018; albumin negative; slight trace of sugar.

Blood—red blood count 3,180,000; sahli hemoglobin 74 per cent; white blood count 6,200 with 54 polymorphonuclear neutrophils, and 46 lymphocytes. Platelet count 143,000. Fasting blood sugar 98. N.P.N. 32. Wassermann negative. Test for hemosiderin crystals in urine positive.

Treatment

The patient was placed on a high carbohydrate diet, and intramuscular liver injections. He improved for several months but continued to work and in January developed shortness of breath on exertion and an increase in the swelling of his feet and ankles. He was referred to the Veterans Hospital at Kecoughtan, Virginia. There was very little improvement after hospitalization. The patient grew gradually weaker, developed marked ascites, expectorated large quantities of blood and finally succumbed in May, 1937.

Post-Mortem Examination

Gross Description: Body was of well developed and very well nourished white male, about forty-five years of age. There was a diffuse brown pigmentation of the skin, especially noticeable on the face, hands and genitalia. There was moderate edema of both legs.

Thorax: Lungs fully inflated. Pleura smooth and glistening. No adhesions of either lung to chest wall. On section lungs were air containing throughout. No areas of consolidation or evidence of tuberculosis seen. Heart — Pericardial sac smooth and glistening. Heart not enlarged. Myocardium and valves appeared normal.

Abdomen: Stomach and intestines moderately dilated, thin and presented a dark, purplish color. On opening these organs a large amount of old dark blood was found throughout the stomach and most of the intestines. The stomach and jejunum showed many large dilated blood vessels. No ulcers or tumors could be found. Appendix was normal. No adhesions were present. The liver was half the normal size and weighed 1,689 grams. It was firm, markedly irregular and nodular. It was dark and areas of dark brown mottling were scattered throughout. The gall-bladder was large and distended, containing 300 cc. of light brown bile. The spleen was soft and about twice the normal size, weighing 630 grams. On section the cut surface was moist and friable on scraping. Both kidneys were large and firm; presented no pathology. The adrenals were small, but on section presented normal appearing tissue. No fibrosis or other pathology of the adrenals could be found.

Microscopic Diagnosis

Sections of the liver showed a marked amount of fibrous tissue throughout the liver which had distorted the liver lobules. A large amount of pigment was noted. Large accumulations of lymphocytes were present.

Sections of the spleen showed an increase of fibrous tissue throughout the structure which had distorted the lymphoid tissue.

Sections of the adrenals showed no evidence of microscopic pathology except for pigmentation.

Sections of the kidney showed deposits of pigment at several points. Accumulations of lymphocytes were seen at different areas. Some fragmentation of the Malpighian tufts was present but the kidney tissue as a whole presented few abnormalities.

Anatomical Diagnosis

Cirrhosis of liver, severe. Varicosities of stomach and jejunum. Hyperplasia of spleen. Hemorrhage of gastrointestinal tract. Hemochromatosis.

Diagnostic Laboratory Procedures

The substantiation of the clinical diagnosis by laboratory methods is not difficult. The usual procedure is to biopsy a small portion of the pigmented skin under local anesthesia. The tissue is then hardened in alcohol and formaldehyde and sectioned. It is then stained with 2 per cent postassium ferrocyanide for one hour, transferred to 1 per cent hydrochloric acid for one hour and counterstained with alum-carmine. Microscopic examination will then reveal the typical Prussian blue color of the iron pigment after its treatment with the ferrocyanide.

It is not always feasible to obtain skin biopsies outside of the hospital and the urine test as devised by Rous[4] may be substituted. Although it is not as accurate as a skin biopsy, a positive test in the presence of the clinical phenomena noted in this disease should be considered diagnostic. The test is performed by centrifuging fresh urine. The sediment is then mixed with a small amount of human serum (free from hemoglobin); thick smears are made and fixed with heat. Place in strong ammonium sulphide for one hour, then wash with water. Treat the smears with a fresh mixture of equal parts of 2 per cent potassium ferrocyanide and 1 per cent hydrochloric acid, then wash with water and stain with lithium carmine for a few minutes. Wash with 1 per cent hydrochloric acid and alcohol, then run through 95 per cent alcohol and absolute alcohol xylol. Microscopic examination reveals the characteristic large blue granules. The granules are produced by the staining of the hemosiderin crystals. Individuals with pernicious anemia will at times demonstrate blue granules by this test but these are usually much smaller than the granules found in hemochromatosis.

Treatment

Hemochromatosis is usually not discovered until almost irreparable damage to the liver and pancreas has taken place. Therefore, therapy may be only palliative. Many of these cases are first seen in severe diabetic acidosis and unfortunately they do not respond to insulin therapy as the simpler cases of diabetes mellitus. The deposition of iron containing pigments in the liver and pancreas with subsequent fibrosis is probably the cause of this inability to utilize regular insulin. The glycogen stores of the liver are depleted and quick-acting insulin metabolizes so much glycogen that the patient is thrown into hypoglycemia. The advent of protamine insulin with its prolonged action may enable us to overcome this difficulty.

If the patients do not succumb from diabetic acidosis or intercurrent infections they usually die on account of liver insufficiency. It would seem logical that we attempt to protect the liver in order to prevent this outcome. Alterations in the concentration of serum proteins during the course of hepatic cirrhosis has been demonstrated by Kerr *et al*,[5] Sawada[6] and Tumen.[7] Reduction in the serum albumin with increase in the globulin is the most frequent finding. It is also well known that the glycogen reserve is lowered after hepatic damage. Under these circumstances, a satisfactory dietary régimé would be an increase in the carbohydrate and protein elements with a minimum of fat. In 1935 Wright[8] described the frequent finding of macrocytic anemias associated with hepatic cirrhosis. Forbes *et al*[9] produced a liver preparation which, when injected into rats, protected them against liver necrosis after carbon tetrachloride administration. This form of liver is still not available for commercial use, but as the intramuscular injection of liver is logical therapy in the treatment of macrocytic anemias and with the proof that certain liver fractions will also prevent liver necrosis, it certainly would seem wise to treat hemochromatosis with injections of liver. Case III was placed on the above dietary régimé with intramuscular injec-

tions of liver and seemed definitely improved for a short while.

In résumé, the ideal treatment for hemochromatosis would appear to be a high carbohydrate, high protein diet with protamine insulin when necessary and intramuscular injections of liver, preferably using the extract obtained by Forbes if it becomes commercially available.

CONCLUSIONS

1. Three cases of hemochromatosis are presented with autopsy findings.
2. Diagnostic laboratory methods are discussed and it is believed that the Rous urine test is satisfactory for diagnosis.
3. A plan of treatment is outlined which should prolong the life of individuals suffering from this disease.

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TREATMENT OF PAINFUL LESIONS OF THE ANORECTUM IN GENERAL PRACTICE.*

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Introduction.—There are few conditions that will cause a patient to seek the aid of a physician or surgeon more promptly than the acute, painful conditions of the anus. The general practitioner is the individual who is usually consulted first, and it is he who is most frequently called upon to make the diagnosis and treat the condition immediately. For this reason, the ordinary painful lesions of the anus will be discussed with the view of presenting the mode of examination, findings, differential diagnosis, and treatment of these more common conditions. Thus, if a patient presents himself with "a pain in (or near) the rectum," the following conditions should be given consideration by the physician:

1 Anal Fissure
2. External Thrombotic Hemorrhoid
3. Anal Abscess
4. Simple Direct Sinus and Fistula
5. Prolapsed, Strangulated Hemorrhoids
6. Foreign Body.

It is not my purpose to discuss all of the painful lesions of the region, but to give consideration only to those that may be treated by the average physician in general practice. These lesions constitute some of the minor surgical conditions of this region and many of them can be adequately treated in office practice. The physician must possess some degree of skill and familiarity with diseases of the anal region. He should not be lulled into any sense of false security by what might be considered minor surgery, nor should he be satisfied with the diagnosis of the most evident presenting pathology. Reward, in the form of early diagnosis of rectal carcinoma, will come to every physician who considers all patients with "rectal trouble" to have malignancy until proven otherwise. To this end, at least a high digital examination is indicated when instrumental examination is deferred due to the presence of a painful lesion.

The conduct of the examination in the presence of a painful lesion of the anus is most important. The physician who makes a relatively painless examination gains the confidence of the patient at the start. Patients have a well grounded fear of a hasty and rough digital or instrumental examination of the anus, and the addition of a painful examination to the discomfort already experienced is usually more

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than they can bear. It is a mistake to tell the patient that he will not be hurt, and it is also a mistake to hurt the patient without telling him. Most patients will cooperate if they are told that, in the presence of an already painful lesion, some additional pain must be expected but that the examination will be made as gently and carefully as possible.

In order to make the examination easier, it is felt that the most comfortable position is the lateral Sims' position. This leaves one of the patient's hands free to elevate the uppermost buttock and, in the absence of a nurse or assistant, the examination is thus facilitated.

Inspection of the anal area should be the first procedure, and by gently separating the buttocks a great deal of information may be obtained. Inspection will reveal the presence of most thrombotic hemorrhoids, abscesses and sinuses that have produced redness, induration and swelling of the perianal skin. The external openings of simple direct fistula can usually be seen within an inch of the anal margin. The sphincter spasm associated with fissure, small obscure abscesses and sinuses, small thrombi, or a foreign body lodged in a crypt of Morgagni should be looked for as it will serve as an excellent warning to be especially careful in making a digital examination.

Digital examination is rather difficult to perform in the presence of a painful lesion of the anus, and, in the absence of pus, the area near the site of pain may be infiltrated with a local anesthetic. The topical application of any of our available surface anesthetics has not been satisfactory in the hands of experienced proctologists, and for that reason it is not recommended.

Digital examination should be as thorough as possible and, by asking the patient to strain, the entire rectum, and in a high percentage of cases the rectosigmoid junction, may be palpated.

Anoscopic and proctosigmoidoscopic examination should complete the visual inspection of this terminal portion of the bowel. To accomplish this properly there are a few necessary requirements for both the patient and physician.

General anesthesia should never be used during a proctoscopic or sigmoidoscopic examination as it only makes the examination more difficult and is a decided risk to the patient.

Adequate preparation usually consists of a plain warm water enema given two to three hours before examination and completely expelled. Inasmuch as the average physician does not have a tilting, proctoscopic table, the knee-chest position has usually been recommended. However, in this position it is still necessary to "scope uphill" during the examination. This is undesirable and a more thorough examination can be made if the patient is allowed to rest his head, shoulders, and elbows on a pillow placed on the floor with the thighs and legs resting transversely across a regular examining table. The patient's body is thus in an inverted vertical position. Atmospheric pressure dilates the bowel as the sigmoidoscope is introduced and examination is thus facilitated.

Depending upon the history and proctoscopic findings, the physician is able to determine the need of a barium enema, G. I. series, or further examinations and consultations.

Many of the conditions mentioned can be diagnosed and treated by the skillful general practitioner in his office with a considerable economic saving to the patient. However, the physician should select the cases properly with due regard to the limitations of office treatment. Unsatisfactory results are more frequently due to poor selection of cases than to misdirected therapy.

ANAL FISSURE

This is a painful linear tear or ulcer of the anal canal and it is encountered in two main types: 1. Acute fissure; and 2. Chronic fissure.

1. Acute Fissure.—The diagnosis of acute fissure can usually be made by the history of recent severe sharp tearing pain experienced by the patient at the time of bowel movement. Examination confirms the diagnosis, when, upon inspection, light palpation, and careful eversion of the anal canal, a linear tear of the anal canal is seen. Fissures are most commonly located in the posterior mid-line. Eversion of the canal, accompanied by spreading of the margins of this area usually causes the fissure to bleed very freely. The lesion is very superficial and it is not accompanied by any evidence of induration or infiltration of the adjacent tissues. Thus, no sharply demarcated tendency to fixation is seen. The lesion is simply an acute, traumatic tear of the anal skin that has developed incident to bowel movement. Diarrhea or the passage of a firm constipated stool will ordinarily have produced the lesion, but the normal bowel movement may do the same thing.

Treatment.—This early traumatic lesion will

usually respond to the following régimé: The patient is placed on a soft diet. A soft stool that is lubricated in its passage through the anus is obtained by prescribing regular daily doses of agar and oil to be taken at bedtime for the next four to six weeks. A hot Sitz bath taken for ten minutes one to four times a day or at least at bedtime will be found most useful. Local applications of soothing ointments applied with the index finger are also of value.

The acute traumatic lesion will usually respond to this palliative régimé, but, if it fails to do so, one should consider treating it as outlined under chronic fissure.

2. Chronic Fissure.—The diagnosis of a chronic fissure can usually be made from the history of a chronic, recurrent, sharp, severe pain experienced by the patient at the time of bowel movement. This lesion is responsible for the perpetually painful anus characterized by soreness, aching, and burning that is markedly aggravated by stool, straining, coughing, or lifting. Constipation is inevitable in the majority of cases due to the chronic sphincter spasm. This lesion has usually developed from an earlier acute fissure that has not healed. The fissure becomes infected; granulation tissue develops and poor drainage favors an increased fibrous tissue deposit about the outer edges of the lesion. The anal fissure is now an elongated chronic ulcer whose outer pole is marked by a skin tab of infected connective and vascular tissue known as a sentinel pile. The presence of a sentinel pile indicates chronicity and its removal is imperative for adequate and permanent cure of the lesion.

Treatment.—The treatment of chronic anal fissure accompanied by sentinel pile is complete excision of all the pathological tissue. Local anesthesia, properly induced, can be advantageously used for these cases and the technique of injection is herein given.

After preliminary skin preparation, a novocain wheal is raised in the posterior mid-line, one and one-half inches distal to the anal margin. About 2 cc. of novocain is infiltrated in a fan-like manner from this point towards the anus. Next, an infiltration of between five and 8 cc. of one of our new oil soluble anesthetics is used. The indications and contraindications for the use of these solutions are the same as for novocain. However, a few precautions regarding their use should be noted. The solution should be warmed in the ampoule and aspirated into the syringe through a sixteen to eighteen gauge needle. The needle should be changed to a twenty-one to twenty-two gauge for injection purposes. With this smaller needle, it is impossible to inject the solution too rapidly or to "pool" the solution. No oil soluble anesthetic should be injected into the skin as slough will be sure to follow. The needle is kept in motion and the entire post-anal quadrant is infiltrated just as one would use novocain. Perforation into the rectum is avoided by inserting the index finger of the free hand into the anal canal to act as a guide.

Following anesthetization of the area, the fissure and sentinel pile are excised widely so as to leave a radial scar at the site of excision. Any overhanging edges are carefully trimmed away. Bleeders are ligated, the wound is left open, and a thin strip of dry gauze is inserted at the end of the operation. A pressure dressing is applied.

The injection of an oil soluble anesthetic produces the same initial discomfort as a novocain injection. However, the wearing-off period is greatly delayed, and anesthesia lasting five to twenty-eight days is encountered regularly. Removal of the gauze dressing the next day and the after care, including digital examinations are thus facilitated and relatively painless. Delayed healing does not accompany this prolonged period of anesthesia. The routine after care of hot Sitz baths, soothing ointment, and soft bowel contents lubricated by agar and oil, is indicated.

EXTERNAL THROMBOTIC HEMORRHOIDS.

This is the second most common painful lesion of the anus that brings the patient to your office. This is not the true "attack of piles," as will be described later. The patient usually gives a history of the sudden appearance of a lump at the anus. The lesion usually becomes worse within twenty to forty-hours and is attended by a constant aching pain. Bleeding rarely occurs in contrast to fissure. On examination a bluish-black mass, varying from the size of a pea to that of a walnut, located beneath the skin of the anal margin or in the anal canal, is the characteristic finding. As a rule, the area is edematous and irritated due to the efforts of the patient to push the pile up into the rectum where it did not belong. This lesion, in contrast to the external varicose hemorrhoid, is not a collapsible deformity. It is a hard, nodular, grape-like lesion.

Treatment.—The simplest treatment of a thrombotic external hemorrhoid is incision and evacuation of the clot Local anesthesia may be used as has

been previously discussed, and, if desired, the site of injection may be changed to a point just external and distal to the thrombotic mass. A linear or elliptical incision is made directly over the clot, or clots, and these are readily evacuated by simple pressure. Arterial bleeding is rare, suturing is unnecessary, and a dry gauze dressing is applied so as to exert some local pressure. The patient is impressed with the importance of local hygiene which is aided by the use of the Sitz bath. Daily inspection of the area is indicated until the lesion is healed.

Anal Abscess

This is the third most common lesion that will produce acute pain in the anus. The acute, throbbing, persistent anal pain of abscess is usually of increasing intensity until spontaneous rupture or surgical incision relieves the condition. Constipation results from the fear of pain at bowel movement and even forced anorexia may ensue. The history is usually one of short duration. The pain is increased by standing or sitting as the dependent congested location is responsible for the production of symptoms out of proportion to the size of the lesion. The pain of abscess in this location is increased as one approaches the sphincter area and the small, obscure inter-sphincteric abscesses are often most difficult to identify.

Abscesses whose location is readily identified by redness, swelling, and induration should be treated by prompt and early incision. Some form of anesthesia other than local should be used for these cases.

Treatment.—At this time, I think it would be well to briefly describe a useful method of securing prolonged drainage for these abscess cavities. Radial or elliptical incision has been advocated for the method of draining these abscess cavities. Occasionally drainage does not continue freely due to premature sealing of the line of incision. For several years I have made it a practice to use a large oval or even circular type of incision that literally "uncaps" the abscess cavity. The resulting wound is a gaping skin defect that will usually stay open until the cavity has collapsed and filled up to the skin surface. If it is necessary to pack the cavity, the packing should be applied loosely and removed in twenty-four hours. The post-operative régime of hot Sitz baths and warm applications ensures a comfortable and more rapid recovery.

The obvious abscess is thus readily diagnosed and treated, but the obscure, small, inter-sphincteric lesion is often very difficult to locate so that proper treatment may be instituted. Gentle digital palpation around the anal margin will often elicit pain over an area whose skin covering shows no evidence of abnormality. Gentle aversion of the anal canal accompanied by this light digital pressure will frequently be followed by a discharge of pus that will escape through the anal canal. This may identify the site of the lesion which is really a sinus tract whose beginning is probably located in a crypt of Morgagni. This will be discussed later. However, it is felt that all abscesses of the perianal region should be considered fistulae until they are proven otherwise.

Simple Direct Sinus and Fistula

I think the distinction between these two lesions can be made more clear if we briefly consider the pathological processes leading to their development. However, I wish to define sinus, as it is usually encountered, as an abscess tract commonly beginning in a crypt of Morgagni and from there burrowing its way outwards, downwards, or laterally through the tissues and structures of the anus. No external secondary skin opening is present. Simple direct fistula, on the other hand, has its primary internal opening in a crypt of Morgagni, and, after burrowing its way through the tissues of the anus, appears on the skin as a secondary external opening of a suppurative tract.

The following sequence of events usually occurs in the development of both sinus and fistula: 1. Infection of an anal crypt followed by ulceration; 2. Burrowing of the infection into the perianal tissues; 3. The formation of an abscess. This is the stage at which the patients demand immediate relief of their pain, provided adequate drainage up into the rectum has not occurred. The fourth stage is reached when drainage through the skin occurs. This may be in the form of spontaneous rupture or surgical incision. A fistula is now the diagnosis. The chronic cases are identified by the history of alternate periods of pus retention and drainage.

Treatment.—The treatment of the majority of these sinuses presents an individual problem. Their primary internal opening should be identified through an operative anoscope and the incision should follow the tract outwards across the anal margin. Overhanging skin edges should be trimmed away freely so as to afford good drainage for the inner portion of the wound. A gauze dressing is

placed through the wound at the conclusion of the operation. This is removed in twenty-four hours, and the wound is inspected daily thereafter, as will be outlined under fistula.

A simple, direct fistula is usually the end result of the spontaneous rupture or surgical incision of an anal abscess or an anal sinus. As a rule, all fistulae are best treated in the hospital, but on occasion the physician may feel that office treatment is indicated. A typical small fistula will thus be described and the plan of treatment discussed.

The patient has probably presented himself to you with the history of a recent or old abscess that has continued to drain from time to time. Upon inspection, a seropurulent discharge is seen escaping from a "pimple" close to the anal margin. The secondary external opening will usually be within an inch of the anal orifice, and I would caution you that if the external opening is of any great distance from the anal orifice, you are probably dealing with a complicated fistula that should not be given office treatment. These simple, direct fistulae will usually be one and one-half inches to two inches in total length. Their primary internal opening can be identified with an anoscope. This is usually located as being directly in from the secondary external opening. The involved crypt of Morgagni will be red, inflamed, and will bleed readily when touched with a cotton applicator. The relationship of the tract to the sphincter can be determined only by experience, but it may be safely stated that the majority of these short direct fistulae do not involve the muscle.

Following the proper identification of the fistula, a soft annealed silver wire probe of small diameter is cautiously threaded through the tract. Upon emerging from the primary internal opening, the probe is directed out through the anal canal. With the silver wire as a guide, the tract is elevated so as to place it under light tension and a local anesthetic is infiltrated well underneath and around the fistulous area. Excision of the fistula may be done by simply laying the tract open or by completely excising the lesion with its granulation tissue tract.

PROLAPSED STRANGULATED HEMORRHOIDS

This represents the true "attack of piles" and is usually encountered in a patient who has had hemorrhoids for many years.

Diagnosis of this type of condition presents little difficulty except that the condition should obviously not be confused with a thrombotic external hemorrhoid. Inspection will reveal several hemorrhoidal masses covered by both skin and mucosa that obliterate the anal orifice. Redness, swelling, circumanal edema, and a surface discharge of mucus and blood is present. These are mixed internal and external hemorrhoids.

If the sphincter is atonic, a mass that is acutely inflamed will be encountered. If the sphincter is spastic, the hemorrhoids swell rapidly, become thrombosed, and go on to gangrene and sloughing. The former condition causes considerable soreness and pain, while the latter condition, if untreated, usually means several weeks of needless suffering and disability.

There are several ways of treating both of these types, but I am firmly convinced that surgical hemorrhoidectomy has the most to offer the patient. However, if palliative treatment is desired, I feel that the following régime will be most useful. The patient is put to bed and continuous hot compresses are advised. Hot witch hazel solution, boric acid, lead and opium wash, or the following formula may be used:

Mag. Sulphate	2 tbsp.
Glycerin	1 tbsp.
Water	1 pint

The compresses are kept hot with the aid of a hot water bottle or an insulated electric pad.

A soft diet is advised and an agar and oil preparation is prescribed to be taken daily at bedtime. Hot Sitz baths for ten minutes three to four times daily are most helpful. When the patient becomes ambulatory, the local application of a mildly anesthetic and antiseptic ointment is useful, and the instillation of one to two ounces of warm oil at bedtime will have a most beneficial action.

Insertion of ointment with a pile pipe, or the insertion of suppositories are not generally advocated as the patient usually will traumatize himself in using either.

Under this régime, you can expect to relieve all of your patients, but to permanently cure only a few cases.

The residual of this so-called "attack of piles" is seen in later years as external skin tags and internal hemorrhoids that have again become vascularized. However, if the patient refuses hemorrhoidectomy, the palliative method should be used.

FOREIGN BODY

We are not concerned here with the subject of foreign bodies introduced into the rectum through the anus as it is too extensive a field to cover. However, swallowed foreign bodies of small size often become lodged in the region of the anal crypts and produce considerable discomfort. A great deal of irritation and sphincter spasm may be set up when pieces of bran, splinters of bone, small pieces of shell found in various sea foods, tooth brush bristles, psyllium seeds, and grape seeds become lodged in the anal crypts of Morgagni. These are the pockets or "catch basins" of the anorectal line, whose mouths face towards the flow of the fecal stream.

The larger foreign bodies such as chicken bones, larger fish bones and pins, are usually readily diagnosed, but the smaller objects are often very difficult to diagnose. The most reliable means of diagnosis is by palpation and direct inspection. The finger should be inserted carefully and light palpation of the anorectal line carried out. One may feel the small seed or bone splinter located at a point of exquisite tenderness, but it is usually best not to attempt digital withdrawal of the object. This should be done, if possible, under direct vision. Having identified the site of the foreign body, an anoscope is next inserted and the crypt area is inspected. A bleeding area will usually be seen due to the previous digital trauma. This should be gently swabbed and the foreign body removed with small forceps. Topical anesthesia is of little value preceding this manipulation, but the traumatized anorectum can be soothed following removal by the instillation of warm oil or anesthetic and antiseptic suppositories. It is also well to prescribe agar and oil at bedtime for a week to ten days for its lubricating effect.

Removal of larger foreign bodies usually requires the administration of a general anesthetic.

SUMMARY

At the cost of recapitulation, I feel that those patients who consult you for the treatment of acute anal pain will usually be found to have one of these lesions:

1. *Anal Fissure.*—The acute fissure is manifest by sharp, tearing pain accompanied by bleeding, incident to the trauma of stool. The pain usually subsides quickly.

The chronic fissure is manifest by severe, cutting pain, bleeding, and reflex constipation of long duration. The pain may last for hours after a bowel passage and the patient usually has noted a "hard skin lump" in the posterior commissure.

2. *External Thrombotic Hemorrhoids.*—This is the painful swelling that has developed over a period of several hours or days accompanied by reflex constipation. There is no bleeding and a throbbing type of pain is not common.

3. *Anal Abscess.*—This is a type of recent acute throbbing pain that is aggravated by sitting or standing. Attempt at bowel movement is painful and the throbbing pain will continue for several hours.

The patient will often confuse this tender painful swelling at the anal margin with a thrombotic hemorrhoid. Examination should settle the diagnosis.

4. *Simple Direct Sinus and Fistula.* — These lesions give rise to the same symptoms as abscess when there is a retention of drainage. However, with spontaneous drainage of pus there is relief. The history of intermittent drainage with relief of pain followed by retention of pus and return of pain should sugest the type of lesion to look for.

5. *Prolapsed Strangulated Hemorrhoids.*—This usually occurs in a patient who has had bleeding, protruding piles for several years. A patient entering your office with this history who states that his piles are now "down" and he "can't get them back" will usually be found to have this condition. It should be differentiated from a single, acute, thrombotic hemorrhoid, and, more rarely, from a prolapse of the rectum.

6. *Foreign Body.* — The history of swallowed chicken bones and pieces of shell in seafood, make the diagnosis fairly easy in this condition. However, one may have to inquire at length before a patient volunteers the information regarding the eating of seafood, grapes, and so forth. The diagnosis rests upon identification of the foreign body in the anorectum.

PSYCHIATRIC ASPECTS OF PHYSICAL ILLNESS.*

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Physicians are constantly being impressed by the importance of emotional and psychological factors among their patients. It has been estimated that over one-third of the patients coming for attention present no primary physical disease. There are two faulty tendencies. On the one hand, the physician in practice is inclined to neglect the emotional and psychological aspects of his patient's difficulties. On the other hand, the psychiatrist is prone to neglect physical factors. It is an indictment that works both ways. The situation is being improved because of investigations in progress in many centers.

This field of inter-relations is designated by the term "psychosomatic relations". Although we are still in the dark as to the correspondence of psychic (mind) and somatic (body) mechanisms, what we know has resulted from detailed psychiatric and psychological investigation on the one hand, and from physiological studies on the other.

In general, we can say that a patient develops a mental illness because some stressful situation, or combination of such, has produced a failure in adjustment. I like to compare adjustment in life to walking on a rail fence. Everyone can withstand so much stress without breaking. An average, so-called normal, individual will maintain his balance on the fence in a cross wind of twenty miles an hour. Twenty-five miles would be too much and he would fall off. But if he is just up from influenza he will be below par, his reserve will be lowered, and he would not be able to maintain his balance against a five mile wind.

By the same reasoning, and this really occurs: a young mother just delivered, ordinarily well adjusted, may develop in the puerperium a so-called "puerperal insanity", or post-partum psychosis, this appearing in a person who has a profound secondary anemia and has passed through a painful labor.

A person passes from one experience to another on throughout life. In each of these there occurs an emotional reaction of some sort, whether it be pain, pleasure, distress, anxiety, fear, resignation. In other words, most life experiences have an associated emotional expression, and these emotional expressions have physiological accompaniments. One example is the reaction to fear—with increased secretion of adrenalin by the adrenal glands. The blood sugar rises appreciably in states of fear and anxiety. We have the familiar example of the anxious medical student who develops sugar in his urine prior to examinations. Another example is flushing of the face, a localized vasomotor dilatation, associated with embarrassment.

A reaction is considered "reversible" when no structural change or damage can be demonstrated after the physiological reaction has passed, as in blushing, or as in frequency of urination or stools during anxiety states. But such repeated reactions may produce an "irreversible" reaction in which structural and perhaps irreparable damage is done.

For example, elevation of the blood pressure may be the only objective manifestation of an emotional crisis. This may reach 200 mm. Hg. in emotional situations and otherwise return to normal. Eventually the blood pressure may not return to normal between times and hypertrophy of the left ventricle and cylindrical dilatation of the aorta may occur.

Gastric hyper-secretion and hyperacidity may produce eventually damage to the gastric mucosa with ulceration. I have seen examples among anxious protracted depressions, and they have responded well to the usual dietary measures and medication.

One could go on and on with numerous examples. The recent literature on the subject has been covered by Dunbar in her book entitled "Psychosomatic Relations", Columbia University Press, and is worthy of study.

I prefer, however, to give pen sketches of some common conditions seen on the medical wards of a general hospital. For several years the practice has been to freely use the staff of the psychiatric clinic with which I was connected in the examination of cases on the general wards of the Presbyterian Hospital. For example, all thyroid cases are seen before operation by the surgeon, medical man, and psychiatrist.

The first case is a female, single, age thirty-three.

*Read before the Southwestern Virginia Medical Society, at Abingdon, Va., April 14, 1938.

There was a previous admission to Presbyterian Hospital, with diagnosis of active rheumatic heart disease, mitral insufficiency and stenosis, and aortic insufficiency with psychoneurosis, anxiety type.

The patient had experienced a severe decompensation which cleared up after a month in the hospital. She was readmitted after four months with signs of decompensation. She was depressed, and developed attacks of palpitation even when at rest.

The psychiatrist discovered that her depression was a reaction to her heart damage. Patient was the oldest of ten children of an Italian family of limited means. She mentioned the fact that she had previously worked hard and had no time for social activities or heterosexual relations—which were now made impossible by her cardiac infirmity. While talking about this she wept frequently. The facts could not be denied, because it was true that she had to rest and be an invalid. The picture was one not only of severe cardiac involvement but of an associated anxiety which was constituting additional strain on the heart.

These psychogenic factors were gone into more deeply. The patient was permitted to unburden herself and soon it was noted that her depression was lifting and that her anxiety attacks were becoming less frequent. The problem came up as to how to handle her after she left the hospital. The cooperation of the medical service and social service departments was requested, to determine how much physical effort the patient could make without feeling effects.

The medical service drew up a complete chart enumerating each hour of the day with attendant activities and rest periods. This was designed to bolster up her ego, and make her an asset instead of a liability; and her neurosis disappeared.

The second case is one of ulcerative colitis. It shows how an outbreak of colitis occurred at several life crises.†

The gastro-intestinal tract receives a lot of an individual's attention, consideration and actual affection all through life. The gastro-intestinal tract is utilized to an unbelievable extent in the production of mental symptoms. Particularly in depressions and in involutional melancholia do we find constipation and preoccupation with the condition of the bowels, while at the same time all external interests, family work, hobbies, etc., are given up.

I wish to sketch a cardiovascular problem.

A patient is presented with onset of acute anxiety, followed by pain in the precordium, marked depression and a paranoid trend with ideas of reference. He thinks people look at him, especially men, and thinks that they question his masculinity. Women look at him, want to flirt with him, and when he doesn't accept their advances they also question his masculinity.

In the central picture the patient presents an anxiety neurosis.

The first step in this case is a careful physical examination with reassurance as to his heart condition. This is the beginning: the patient should not be left with assurance only, since there are many deeply underlying emotional factors.

This patient is seriously ill. In going into his background, one finds other factors. He has been married six years. During the first year of his marriage he was sexually active. About three years ago, at the time his acute mental symptoms began, he lost interest in coitus and began to phantasy about other women, but his loyalty to his wife made him feel guilty about these thoughts. During the past year coitus occurred once monthly with unsatisfactory results. The patient has been taking a course in pharmacy at night and was about to graduate at the time of his symptoms. His wife helped him in every way to complete his studies and this, too, made him feel guilty about having sexual phantasies concerning other women.

The main features of this case are:

1. Symptoms began with the decrease in his sexual activities.

2. The patient has become more and more depressed.

3. There are ideas of reference, especially in regard to his manhood.

4. The patient questions the advisability of finishing his pharmacy course, and what the future will bring.

The patient is one of three brothers. All aspired to a professional status. The oldest graduated from a medical school with the support of the other two, and it was understood that when he finished, he in turn would help the other brothers. This he failed to do, greatly to the patient's resentment. The hostility towards this brother plays an important role

†Details of this case read verbally with permission of Dr. G. E. Daniels, Presbyterian Hospital, New York City, who treated her intensively. Since it is being published by him at a later date, it is not published here.

here, and, being incapable of open expression, rebounds upon the patient, causing symptoms.

It is interesting to note the stress the patient places on his excessive heterosexual activities when first married, indicating an underlying inferiority as to his masculinity with an attempt to over-compensate.

Delirium occurs frequently in the general hospital. The psychiatrist is not usually called in until the behavior of the patient is so disturbing that he is sent to a mental hospital.

Four physical conditions which bring on delirium are:

1. Brain tumor.
2. Cerebral syphilis.
3. Cerebral arteriosclerosis and senile conditions.
4. Encephalitis.

In the arteriosclerotic and senile, the patient gets up and wanders about at night. He may have hallucinations and vivid visions.

I would like to give one example of a delirious reaction seen by me at Presbyterian Hospital that illustrates how an operation, in this instance prostatectomy, can release, in the symptoms of the delirium, the patient's psychological problems.

A Jewish man of sixty, about three days after an uncomplicated suprapubic prostatectomy, became extremely agitated and fearful, particularly at night. He would have the nurses hold his hand, saying "Keep them away," and evinced great fear lest something might happen to him. The urological staff and nurses could get no lead as to why he was afraid. I felt that the operation and catheterizations had meant more to him psychologically than the simple removal of his prostate, and used this hunch in questioning him. I assumed that to him the operation meant actual injury to his genitals; a sort of castration. So I framed leading but fair questions. It developed that he was afraid of some imaginary men about him, doing some harm to him, to harm him in the form of corroding acid. He feared that this would be thrown on his body. When asked what part, he raised the sheets and pointed to his genitals, saying "You know: down there."

On looking into his previous history, it developed that although his moral life and conduct in the home had been exemplary he nevertheless had sexual phantasies about other women and felt guilty. It is possible that to him the operation represented punishment for these thoughts. This man recovered completely within two weeks.

So much for some illustrative cases. Now a few suggestions as to what the general medical man may expect to do with psychiatric problems which he may face.

He should consider the patient as a whole. What is the presenting symptom complex? This is usually physical, but is often lacking physical manifestations; in other words, it is functional. A clear formulation of the faulty pathological, physiological and metabolic basis comes first. But consider that these dysfunctions have occurred to a human individual living in a world of problems! Give the patient a chance to unburden himself. The emotional problems usually result from such things as rundown physical condition, worries due to quarrels, misunderstandings, disappointments, frustrations. Ask about work, debts, home life, sexual problems. The benefit to the patient will be two-fold. First, he will be relieved just by telling his problems to one who will listen. Second, you as physicians will understand him more completely. You will consider him, for example, not just a case of diarrhea, but as one who has a tendency to develop diarrhea in situations of emotional stress—as one who may even have developed ulcerated colitis on that basis.

There is nothing new in all this. This is just what the wise and understanding physician has been doing for all time. The only difference is that we are now getting to better understand the mechanisms involved.

HYDATID MOLE—CASE REPORT.*

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In the short time allotted to me this evening I wish to report the case of an hydatid mole which developed into chorionic epithelioma, the most malignant of all malignant conditions. Though only a very small per cent of cases of mole undergo this change (fortunate because of its very devastating

*Read at a meeting of the Staff of the McGuire Clinic and St. Luke's Hospital in the Clinic Library on May 17, 1938.

character), it should be borne in mind whenever a patient passes a mole. I will attempt a little later to give an accepted method of handling such cases.

Molar pregnancy has been known since the eighteenth century when Gregorini in 1795 wrote of lung metastasis following the expulsion of a mole. In the early nineteenth century Marchand demonstrated the proliferation of the syncytium and Langhans' layer covering the degenerated stroma of the chorionic villi. and showed that the liquid content of the villi was not mucus but a result of edema.

The etiology of hydatidiform mole is unknown, but seems to lie in some faulty development of the chorionic villi. All moles must be regarded as rapidly growing tumors of embryonic origin and potentially malignant. There is no cellular arrangement whereby one can tell or predict whether a given mole is of a benign or malignant nature. During the development of a mole the fetus is usually destroyed and but rarely discovered in the "molar mass" which is passed, and rarely is normal placental tissue found. Hydatid moles may also occur after tubal pregnancy.

Lutein cysts of the ovary frequently accompany this condition. They are usually bilateral when present, and in a number of cases they have been known to regress following the expulsion of the pathologic placenta. They may persist however and frequently do when chorio-epithelioma develops. Recently the etiology of these cysts has been ascribed to the presence of excessive amounts of pituitary-like hormones in the system in cases with hydatidiform mole.

The diagnosis is based on a history of pregnancy during which there is more or less hemorrhage. The size of the uterus is out of proportion to the duration of pregnancy, although moles have been found in uteri showing no perceptible enlargement over that for the normal period of gestation. They may be found when doing a D and C for inevitable or incomplete abortion. The diagnosis of mole is definite on seeing some of the cystic villi intermixed with the bloody discharge.

The old literature is full of widely varying methods of management and more recently the pendulum has swung from ultraconservatism to radicalism. Each mole however is potentially malignant and the Aschheim-Zondek tests should be done monthly for a year at least.

In a young woman evacuation of the mole by digital or instrumental means seems the procedure of choice. It has been shown however that the danger of perforating the uterus with a curette is a very real one, especially if the uterine cavity is large. This procedure might not reveal the presence of invasive areas in the uterine musculature. Abdominal hysterotomy has been advised, the mole being removed under vision and the field then inspected for chorio-epithelioma. According to Schumann, "this is evidenced by a soft friable hemorrhagic area into which the finger sinks and from which small necrotic masses may be shelled out." If the musculature is not involved the wound is closed in the usual way. If, on the other hand, the wall is involved hysterectomy is done at once. Lutein cysts of the ovaries, if present, are resected. This method offers the patient a great deal more protection against the development of chorio-epithelioma and against perforation than does curettage. In older women hysterectomy should be done earlier than would be the case with a young woman.

Chorio-epithelioma is a highly malignant tumor developing after the formation of fetal cells. Its incidence increases with multiparity. The diagnosis is based on the following points (according to Sänger):

1. History of pregnancy, abortion, or passing a mole.
2. Uterine hemorrhage persisting after curettage.
3. Progressive uterine enlargement after abortion.
4. Anemia and cachexia.
5. Early metastasis, especially in the vagina and lungs.
6. Rapid course within six to seven months.

Since Zondek in 1929 showed that the excretion of gonadotrophic substance is greatly increased in the blood, urine, and spinal fluid in cases of hydatid mole or chorio-epithelioma, the diagnosis has been simplified. He showed that this substance is two to three times as great in the urine as in normal pregnancy, and that the fluid content of the mole is greater than that of the wall.

A positive pregnancy reaction and a progressive increase of gonadotrophic substance in the urine six weeks after the expulsion of a mole strongly suggests chorio-epithelioma. When this reaction becomes negative following removal of the mole and again becomes positive the differential diagnosis between a new pregnancy and chorio-epithelioma must be

made. Zondek stresses the importance of quantitative urine assays in addition to clinical observation. He calls attention to the importance of this procedure for prognosis in chlorio-epithelioma and indicates that if the pregnancy test has become negative after treatment and if the luteinizing substance again appears in the urine that a continuance of the morbid process is to be suspected.

The section shows the opened uterus. The arrow indicates area of invasion.

Once the diagnosis is established a panhysterectomy is imperative unless metastasis has already occurred. X-ray is useful however as this type of growth is highly susceptible to irradiation. In any event all cases treated should have frequent biologic tests and should remain under close observation for two years—recurrences are very unlikely after that time.

Case Report: Mrs. G. E. R., aged twenty-six years, was admitted to St. Luke's Hospital on March 3, 1937, with a history of having menstruated last in September 1936. In January, 1937, the patient began to have vaginal bleeding which lasted for about two weeks before her family physician was called in and the vagina was packed because of "inevitable abortion". Twenty-four hours later she passed a four-pound mole. She was allowed to get up after two weeks but the patient states she was too weak to do so. Two weeks later she was curetted in the home and packing again resorted to. During the next month she had two curettings by different doctors, each one removing parts of the mole. Bleeding at this time became almost constant and she was admitted to this hospital shortly thereafter.

On admission she was very weak; her hemoglobin was 30 per cent and red blood count 2,000,000. A transfusion of 500 cc. of whole blood was done followed by a dilatation and curettage. Chorio-epithelioma was suspected and confirmed by Dr. S. W. Budd. In view of her general condition an immediate hysterectomy seemed unwise. On the following day the patient's chest was X-rayed for metastasis. This report was negative. Another transfusion was given, followed immediately by a total hysterectomy including tubes and ovaries. The uterus was but slightly enlarged. Her convalescence was uneventful. Several Zondek tests have been done; the first which was done three days after operation was positive; three others have been negative. In spite of my insistence the patient declines to report further, saying she is all right and "that it bothers her in her work to come to Richmond".

Monthly pregnancy tests should be done for one year. A positive test longer than six weeks after evacuation of the mole indicates the persistence of chorionic-epithelioma.

THE CORRELATION BETWEEN THE PEDIATRIST, PSYCHIATRIST AND PSYCHOLOGIST.

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Once upon a time there was a girl named Mary.

Don't be alarmed; this is no story by Mister Grimm or Walt Disney. The story of Mary is fact, probably stranger than fiction, but never the less, fact. Now Mary was a beautiful girl of sixteen years, a Junior in a Grade A, High School, well up in her classes, popular with students and teachers—a very religious girl, a leader in her Sunday School and her Church activities, that is, until one night she decided that she was going to Hell.

It happened like this. There was an Evangelist holding services at her Church and of course Mary attended regularly. The Evangelist was a very earnest, very powerful speaker, and on this night the subject was "one shall be taken and the other left". The play on the emotions was terrific and Mary went home a changed girl indeed.

The next day she did not want to go to school, did not even want to get up from her bed. Would not eat, would not talk, became entirely introverted in all of her ideas and thinking. The fixed idea was that she was doomed, everlastingly doomed. Her good mother and father and the rest of her family were to be taken—she left. They were to go to Heaven, she to Hell. By the hour she would sit, simply sit, wringing her hands, eating nothing, paralyzed by fright. After a little while she began saying that she heard voices.

The family was desperate. One doctor who examined Mary told her parents there was nothing left but to send her to the State Institution for the Insane.

When I first saw her she was a pitiable sight, a well developed, pretty girl just budding into womanhood, but cringing behind her mother, being pushed into my office step by step with such a frightened look on her face that anyone with half an eye could see that there was no hysteria about her fear.

I ignored her while taking her history except an occasional question to see her reaction to questioning. There she sat with bowed head, hands wringing and the expression of utter abandonment on her face.

The very significant points in her history and examination in my opinion were:

1. From the physical side, her failure to ever having menstruated, though several years late for its beginning in this part of the country and also from her physical and mental development.

2. From the psychiatric side the abrupt onset of all of her symptoms which dated from one well-remembered night.

What to do with Mary! Was she a true dementia praecox? Would I be jeopardizing her life by advising not to send her to the Hospital for the Insane? Was it fair or just to send her to such an institution when I personally doubted that she was an organic mental case? My own opinion after the examination and consultation with her parents and with Mary was that the trouble was in the realm of her emotions They were surely unbalanced, but I doubted that Mary was.

Most any doctor after deciding on a plan of action for his patient is filled with forebodings as to whether he is right or not. Would that medicine could be reduced to a mathematical formula where one could know the right answer by looking in the back of the book!

However, decisions must be made though the diagnosis can be differed, so I sent her home after deciding to treat the delayed menstruation by hypodermics of Progynon "B", but I was not satisfied that I had done all that I could for Mary. I knew I was not in a position to do what was necessary. Clearly a psychologist was indicated—one who could see Mary several times in her home environment, one who could talk to her freely, one in whom she could confide if there was anything in her family life, school life or her own personal life that might shed further light on why Mary felt compelled to act like she was and had been for the past weeks. So I told her parents I was sending a psychologist to talk to them in the home.

I gave her my findings and history and asked her to get inside the child's mind if possible, to bring into the foreground all the elements that were disturbing Mary's normal, emotional life, and to make Mary's picture of herself in her own mind—now a vague, disturbed and blurred image—a clear cut, distinct and properly focused picture, and I thought Mary would herself recognize that the picture was wrong, unstable and not her true picture at all. She reported to me many times her findings and opinions. Slowly Mary saw, and responded as she saw. I personally was not able to distinguish much change even after I had finished the injections which required her coming to my office for three weeks or more, except for the fact that I felt after my last two talks with her that there was a faint glimmer of hope that she was going to be all right and a half-hearted promise to help us to help her to help herself.

Finally cooperation won. The family gave us every bit of cooperation possible; the psychologist worked hard and faithfully. I am today getting the credit, most of which is due to the family and the psychologist. I saw Mary in Church one night several months later and she waited to tell me how much better she was, back in school and Sunday School enjoying herself and doing good work, the fears all gone, her menstrual periods normal and I consider

this young girl saved to a life of usefulness, happiness and normalcy by cooperation.

This "believe it or not" story could be multiplied many times as the one about Jane, fifteen years old, who thought inside of her forehead was dirty and would not go with the other children, stopped school and all social activities because her companions would see that the inside of her head was dirty. Delayed menstruation also played a part in this story.

Or of Rosa, aged twelve, who could not be made to go to school, and only the psychologist discovered that the reason was that the boy in the seat behind her had insulted her, she thought, by putting his foot on her leg under the seat. A change of schools and bringing her to see the picture in the proper focus remedied this condition.

Or the story of Fred, aged sixteen, who committed suicide by reason of lack of cooperation of his parents with those who could have helped him. And so on from the adolescent emotional disturbance to the cases of real mental deficiencies in earlier ages, as Edward with an I. Q. of 79, but with plenty of mentality to work on and try to salvage. Working with a psychologist, we were able to discover that Edward's home life was far from what it should have been and that the father was showering his affections on the boy in order not to have to show any for his wife. However, he was willing to cooperate, and after many visits to the home with instructions how to guide and teach the boy, a trip to Florida for the mother and child and Edward is indeed much better and more normal. How many of these cases may never be normal, but with the proper care and guidance the child will approach normalcy, sometime very closely as to living life even if not as to school or educational life.

But there is one thing definitely required, and that is cooperation. The development of a child's body can take place even in very unfavorable surroundings, but the development of a child's mind and emotions depends entirely on the cooperative environment given that child by parents, physicians and teachers.

James F. Ferguson, writing in the *International Journal of Individual Psychology,* states:

"All agree, however, that the period in human life to which we apply the term adolescence is characterized by an emotional turbulence. It has recently become a question whether adolescence need be so violent a period; perhaps the transition from childhood to maturity in our culture could be a gradual and well ordered change, as it is among some of the more primitive cultures. However, it is customary to accredit this period with a storminess comparable almost to neurosis. Considered as such, adolescence becomes the transition between the child's attitude of complete dependence and the adult's self-reliant and cooperative attitude. In this sense there is a similarity between adolescence and the struggles of all individuals who do not feel able to solve their problems without accentuated stress and struggle."

The fact to be remembered in any consideration of adolescence is that during this period of growth the "body" and the "mind" of the individual are maturing and bringing to the child an equality with the adult world which obligates him to become a responsible and contributing member of society. The adolescent is confronted with new demands and difficult life-problems. How stormy the period of adolescence will be depends upon how well the child is prepared to meet those problems and the new demands made upon him at that time. From one standpoint, the only difference between the struggle of the adolescent and a transition from neurosis to normalcy is that in adolescence this struggle comes at the logical time.

Howard W. Haggard and Clements C. Fry, in The Anatomy of Personality, state:

"Human character, unlike personality, is not inborn. It is acquired. Character is a product resulting from the action of environment upon the personality. The adaptation of the personality, the conditioning of its inherent qualities, this results in patterns of reaction and modes of behavior which in time become the character." "No man can change his personality, but he may alter his character."

In Building Personality, A. Gordon Melvin so well says:

"Children have been thought of as automata controlled by an environment in a cold and steely fashion. They have not been sufficiently regarded as little people reaching out to dominate an environment, human beings in whom the life-giving enthusiasm and regard of the teacher may awaken a newer and fuller richness of eager learning."

The above quotations are cited to show that cases of emotional and mental disturbances are quite common and that all medical men should be on the lookout for cases which require treatment from the psy-

chological approach rather than from the physiological approach.

Clara Bassett, in Mental Hygiene in the Community, says:

"The practice of psychiatry has become one of the most important phases of the efficient physician's work. Increasingly it is noted that nervous and mental disease constitute the major part of human illness." The author points out that "probably no group of physicians are more in need of mental hygiene training and psychological approach to medicine than those who specialize in the supervision of children."

And Clifford Ernest; writing in the *International Journal of Individual Psychology*, states:

"Mental hygiene as applied science in the field of human relations is indispensable."

Now, while a general practitioner, internist, or pediatrist is primarily interested in medical problems, it is clearly evident that he does his patient a decided injustice if he fails to recognize not only disease and abnormalities of the body in their earliest forms, but also diseases and abnormalities in the mental and emotional side of those who come to him for treatment.

It all boils down to the question of diagnosis. If we diagnose pneumonia to be typhoid fever, time will show us our error and nature will overcome our mistake and little harm has been done except to our reputation.

If we diagnose an acute appendix as indigestion, a life may pay the penalty.

If we fail to recognize mental and emotional disturbances a social cripple may always be there to haunt us.

After diagnosing a medical condition, most doctors with skill plus common sense and nature can handle the situation. When we diagnose a surgical condition, the logical thing is to call in a surgeon.

Therefore, my plea is, logically, when we diagnose or suspect that the diagnosis comes in the realm of the mental or emotional, we call upon the psychologist or psychiatrist to confer, counsel and guide us.

It is truly a revelation how many cases of emotional and mental disturbances can be salvaged by the study and interest, teaching and training—in other words, cooperation—of family, physician, teacher, psychologist and psychiatrist, each factor vital, yet each dependent on the other.

THE BLOOD SMEAR IN DIFFERENTIAL DIAGNOSIS.*

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The application of hematology to modern medicine offers an ever-broadening field and an extremely fascinating approach to diagnosis and treatment. Under trained supervision, studies of the blood, particularly morphological studies, have resulted in remarkable progress during these last few years. It is my conception of modern hematology that the blood smear should serve as a biopsy, valuable in differential diagnosis as an expression of the largest organ of the body to disease.

Although methods for counting blood cells have been available since 1851 and differential white counts have been in use since Ehrlich's application of the aniline dyes to blood smears in 1879, the novelty has not worn off. Even now, fifty-eight years later, the laboratory technician finds herself an automatic counting chamber, responding routinely to the routine query "what's his white count? how many polys?". While these time honored quantitative determinations are not to be discredited, obviously their value is not to be compared with the information to be gained from qualitative studies.

Arneth and Schilling recognized alterations in the quality of leukocytes in disease. Today the Schilling index or one of its modifications is in use in many clinics. Schilling also observed morphological changes in the form of toxic granulation in the white cells in severe infections. Since then various investigators, especially in Germany, have called attention to the possible value of these changes in diagnosis and prognosis. It is only recently, however, that these toxic expressions have been accorded any wide recognition. Rosenthal and his colleagues,[1, 2]

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especially, have contributed to the revival of interest in morphological studies. Mendell, Meranze, and Meranze[3] found the degenerative index of Rosenthal —the ratio of toxic to non-toxic leukocytes—more valuable in diagnosis and prognosis than the total white count or the Schilling index.

During the past ten years it has been established that various lesions, particularly in the gastro-intestinal tract, frequently are associated with alterations in the size of the red cells or the hemoglobin content of the cells or both. Interruption of or interference with the normal physiology of organs related to blood formation appears to be reflected in morphological changes in the blood cells. Thus cirrhosis of the liver often is associated with a macrocytic anemia; a similar anemia may result from carcinoma of the stomach; lesions in the several portions of the colon are accompanied by variable hypochromic states; chronic nephritis is reflected in an unusual blood picture; acidosis, and even chronic passive congestion, so alter the physiology of blood formation that at times the blood of these individuals shows distinctive changes.

Morrison,[4] from a study of one hundred cases of carcinoma, was able to divide the cases into five blood groups. Humphrey[5] concluded that the presence of normoblasts in the peripheral blood in the absence of a definite anemia was "incontrovertible" evidence of skeletal metastasis. Watkins[6] places significance on the presence of "hair cells" in certain types of malignancy. There appears to be little doubt that the blood smear often will be found to suggest malignancy before clinical recognition of a carcinoma is possible.

Correlation of all of these individual observations with impressions gained from studies of the blood in various diseases can be made to form a picture which, properly interpreted, may well serve as second only to biopsy of the organ involved. It is to be remembered that the blood and the reticulo-endothelial system which it represents constitute an organ considerably larger than the liver. Furthermore, the ramifications of the erythron are to be found in every part of the body. In our laboratory blood smears are looked upon as biopsies of this large organ rather than routine blood determinations. The appearance of the cells, both red and white, every abnormality, evidence of regeneration, degeneration, or immaturity, all are considered as part of a complete picture.

Consistently excellent technique is a prerequisite to profitable study of a smear. A thorough knowledge of the variations to be found in normal smears and the staining characteristics of such smears is essential. Far too little attention is given to these important details. The plight of the hematologist who is content to work with poorly prepared blood smears is as serious as that of the surgeon forced to operate with a dull knife or the internist who must complete a satisfactory examination in a dark room.

With proper staining one soon finds that the polymorphonuclear cells undergo definite changes when subjected to inflammatory conditions. While alterations occur in the nuclei, the degenerative changes in the cytoplasm are more impressive. There is retraction of the granules with resultant small, sky blue cytoplasmic buds. The fine neutrophilic granulation, ordinarily inconspicuous, becomes obvious; granules appear prominent, basophilic, and, as the degeneration progresses, these granules become larger, variable in size, and irregularly distributed. The underlying cytoplasm may become slate blue, a dirty gray, vacuolated, or it may disappear entirely. Monocytes, too, exhibit definite toxic changes, monocytic activity apparently representing response to inflammatory involvement of large surfaces such as the peritoneum or pleura. Plasma cells in any great number suggest peritoneal or pleural inflammation. All of these toxic degenerative changes are present somewhat in proportion to the insult to which the cells are subjected.

Pneumonia, for instance, involving a comparatively large surface area in contact with the blood stream is reflected in a highly toxic blood picture. Somewhat analogous to the lung in the relationship of tissue surface to the vascular bed is the kidney, and one would expect, and does find, severe degenerative changes in the blood in pyelonephritis. Generalized peritonitis, empyema, and to a lesser degree, lung abscess and purulent meningitis all are mirrored in the blood in extremely toxic changes. Other inflammatory processes may result in toxic changes the severity of which will depend upon the location and involvement. Localized abscesses, on the other hand, are associated with only minor toxic alterations of the cells.

However fascinating the study of blood smears in the attempt to diagnose hidden malignancy, Hodgkin's disease, bacterial endocarditis, tuberculosis and

other disease, it is in the evaluation of these toxic changes that hematology offers a practical contribution to surgery. Morphological studies offer an excellent possibility for differentiating abdominal hemorrhage from peritonitis, pancreatitis from perforated duodenal ulcer, or ectopic pregnancy from salpingitis. Generalized peritonitis with a low white count is not infrequently confused with typhoid fever, or the pneumonia patient is considered to have a surgical disease. Proper interpretation of the blood smear can render valuable assistance in such cases. From a limited experience, it seems possible that ileitis and abdominal lymphadenitis may be distinguishing from acute appendicitis. Bacterial endocarditis frequently is to be considered or excluded in differential diagnosis, and often this is easily possible from examination of the blood smear. The same holds true for septicemia. Rosenwasser and Rosenthal[7] noted that while the total count and shift may not be appreciably different in mastoid infections and their more serious sequelae the toxic changes reflect the spread of infection quite accurately.

The differential diagnosis of diseases of the liver associated with jaundice has been the subject of especial study. A detailed report of this work is in the process of publication. A marked and definite reticulocyte crisis has been found to accompany recovery from catarrhal jaundice the toxic hepatoses, pneumonia with jaundice, and other parenchymatous disease of the liver. There is no increase of reticulocytes where the patient does not recover. Obstructive jaundice, in contrast, shows no increase in reticulocytes either before or after operation for removal of the obstruction, unless the obstruction is superimposed upon chronic parenchymatous disease of the liver. A low grade, constant reticulocytosis of around 3 per cent frequently is observed in chronic liver disease, and the constancy of this response readily enables differentiation of these cases from mild cases of toxic hepatosis where the reticulocytes rise suddenly to a definite peak with beginning recovery. In the presence of a definite reticulocytosis in a patient with jaundice, surgery is contra-indicated unless there is an associated obvious blood dyscrasia or localized source of septicemia which should be treated locally.

Much more is to be deduced from diligent study and interpretation of the blood smear. Although the cause is not always clear, malignancy frequently is associated with fairly definite changes in the blood. The idea that anemia is to be expected as an incidental part of most infections is all too prevalent. This is especially true of regenerative anemias and of anemia in men. While it is relatively common to find anemia in women, the presence of anemia in men is an entirely different problem and one that demands investigation. And in either case where the blood smear shows any considerable red cell activity without hemorrhage or other obvious cause malignancy must be considered. The leuko-erythroblastic blood picture sometimes seen in metastatic bone lesions is well known.

Illustrative of the value of hematological studies in differential diagnosis are the following recent observations. As the conclusions were arrived at from an entirely objective study, the cases are cited only briefly.

Case 1. A white male, aged thirty-nine was referred with the diagnosis of pernicious anemia not responding to treatment. Blood smear showed a severe hypochromic, microcytic anemia without regeneration. In such an anemia in a man carcinoma of the ascending colon must be ruled out. Barium enema, operation, and biopsy confirmed the hematological diagnosis.

Case 2. A moderate normocytic, hypochromic anemia with active blood regeneration in a white male whose blood smear also showed slight toxic changes and many "hair cells" led to the report "carcinoma, gastro-intestinal tract, probably lower colon." A gastro-intestinal tract X-ray was negative. The patient was found to be a man about forty-five years old whose only positive physical finding was an enlarged liver. Barium enema was requested. This revealed a carcinoma of the sigmoid, operation and biopsy substantiating the diagnosis.

Case 3. Anemia and unexplained temperature in a negro man about fifty years of age suggested the clinical diagnosis of malta fever. Blood smear showed a severe hypochromic anemia with a macrocytic tendency and active regeneration including normoblasts. There were also rare cells resembling plasma cells and occasional myelocytes. Report was returned "metastatic carcinoma or multiple myeloma." Both the prostate and gastro-intestinal tract were found negative on subsequent examination, and the patient was discharged. Reporting later for

check-up he was referred to the hematological division and was readmitted when study of the blood smear again led to the same report. X-rays of the pelvis and skull both revealed metastatic carcinoma, the lesion in the pelvis suggesting a Ewing's tumor. Autopsy showed a leukosarcoma or malignant myeloma of the ileum with extension to the pelvic muscles and metastasis to the liver and lungs.

Case 4. Blood smears from a twenty-nine-year-old white woman were received. These showed an extremely regenerative blood picture with a hypochromic anemia and macrocytosis. The smear suggested carcinoma of the stomach or ileum and was so reported. Operation revealed massive involvement of the ileum and colon. Biopsy showed a highly anaplastic tumor diagnosed as a melanoma after report was received from another hospital of a previous operation for melanoma of the skin.

Case 5. An eleven-year-old boy was admitted because of abdominal pain and vomiting. On the day previously he had been dragged over the field by a cow when he became entangled in a rope attached to the animal. The total white count was approximately 5,500 and aid was requested in the differential diagnosis as between intra-peritoneal hemorrhage, rupture of the stomach, and a gangrenous appendix with generalized peritonitis. Absence of regeneration or other evidence of hemorrhage and a severe, toxic white cell picture favored peritonitis. Operation revealed a ruptured appendix with generalized peritonitis.

Case 6. Smear was received from a negro youth with a white count of approximately 5,000 suspected of having peritonitis, typhoid fever, or malaria. Malarial parasites were found, but there were also extreme toxic changes not in keeping with malaria. The diagnosis of malaria and probable peritonitis was verified at operation, a ruptured appendix accounting for the peritonitis.

Case 7. Blood smear from a twenty-eight year old white male under observation for severe, continuous abdominal pain of twenty-four hours' duration showed no notable abnormality. Operation was advised against, it being felt that there was no abdominal lesion requiring surgery. The patient's recovery was uneventful, X-rays taken later showing duodenal ileus.

Case 8. Blood smear from a white male suspected of having peritonitis showed a white count of approximately 30,000 with a moderate left shift and slight degenerative changes in the leukocytes. Report was returned "not peritonitis." Operation revealed intestinal volvulus.

Case 9. A differential diagnosis as between pneumonia and tuberculosis was requested in the case of a negro girl with a white count of approximately 6,000. Because of a peculiar greyish, fine granulation often seen in smears from persons with tuberculosis and a regenerative red cell picture, the report was returned "consistent with miliary tuberculosis, probable peritoneal involvement." At autopsy she was found to have miliary tuberculosis with tuberculous peritonitis.

Case 10. The question of luetic, rheumatic or bacterial etiology was considered in a case of aortic regurgitation in a twenty-eight year old negro male who continued to run a moderate temperature. Blood smears showed moderately severe, diffuse toxic granulation with mononuclear and red cell activity, and the report was returned "consistent with bacterial endocarditis." Autopsy verified the diagnosis.

Case 11. A twenty-seven year old negro admitted because of vomiting and severe abdominal pain with generalized rigidity was considered to have a ruptured duodenal ulcer, or possibly, volvulus. Routine blood count showed 35,000 white cells with 45 per cent lymphocytes, many of these classed as "immature". Hematological consultation was requested. The blood smear showed myeloblasts with many myelocytes. There were no toxic changes consistent with peritonitis and report was returned "sub-acute myeloid leukemia; no suggestion of a surgical abdomen." Because of continued abdominal signs laparotomy was resorted to, when the hematological diagnosis was found to be correct. Myeloid necrosis or "infarction" of an enlarged leukemic spleen was sufficiently severe to account for the abdominal symptoms.

Case 12. A moderate toxic change without regenerative evidence of blood loss in the case of a young married woman complaining of sudden, severe abdominal pain was thought to indicate salpingitis rather than ectopic pregnancy. The future course substantiated the hematologic diagnosis.

These cases, selected to express the range of possibilities in differential diagnosis through the study of blood smears, are illustrative of the valuable assistance frequently available in careful studies of the blood. To be sure there have been mistakes, re-

sulting, as a rule, in little more than the added expense of negative X-ray films. It is to be emphasized, however, that these studies have been made almost entirely objectively. Should such an objective examination of the blood be followed by study of the patient or correlated with a sufficient knowledge of the clinical picture, the value of blood smear studies in differential diagnosis could be immeasurably increased.

With our knowledge of the blood rapidly increasing it seems to me that the future of hematology lies in the interpretation of qualitative rather than quantitative changes in the blood and in the application of these changes to the diagnostic problems of medicine and surgery. I do not mean to leave the impression that blood counts are to be discarded. Rather can they be combined with qualitative studies to give a complete blood picture. Viewed as a biopsy the blood smear will be found to offer considerable information to the physician who will learn to expect more from, as has been aptly said, "the facial expression of the leukocytes" than from the mere presence of these cells. Disease frequently gives rise to remarkably characteristic leukocytic facies.

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HERNIATION OF THE INTERVERTEBRAL DISC—A REPORT OF TWO CASES.*

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The two cases presented are very different in history but have similar pathology. It is of interest to note that the history of the first case covers a period of several years, and that of the second is only a few weeks in duration; however, both patients gave a definite acute onset of symptoms.

Due to the availability of good literature on the detail of this condition the author will not discuss it here but will give a few criteria that might lead to suspicion of this condition.

Pain is a very constant symptom in practically all instances and will be most noticeable over the sciatic notch of the affected side with radiation down the sciatic nerve either in part or in entirety of its course. The pain may be severe or slight, it may be constant or remissive, and it may or may not be affected by the weather. Position changes are always noticeably important to this type of patient. Accentuation and radiation of pain always accompany any straining effort, such as sneezing, coughing, or straining at stool; this feature aids in differentiating a true cord or radicular pain from a peripheral neuritis. The pain may be relieved by manipulations, salicylates, board bed, rest, etc., or may not; however, if it is due to a herniated disc or hypertrophied ligamentum flava, the relief will be incomplete or temporary or both.

Neurological changes are not constant. There is very often a numbness, tingling or burning over the buttocks and corresponding side of the thigh and leg. Rarely there is a definite finding, such as common peroneal paralysis with foot drop, saddle anesthesia, etc. Examination will show sensation often normal and the only reflex that is rather constantly affected is an absence or diminution of the Achilles reflex of the affected side.

Laboratory examination is usually negative except for an occasional increase of the total protein content of the spinal fluid above 45 milligrams per 100 millilitres.

Differential diagnosis is difficult and one must rule out peripheral neuritis, spinal cord tumor, carcinoma and sarcoma of the vertebrae, thecae of pelvic

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viscerae and sclerosis of the cord. Spina bifida occulta with a small meningocele will often cause similar symptoms.

The final diagnosis hinges upon the finding of a filling defect of the corresponding side following the injection of 4 or 5 cc. of lipiodol into the subarachnoid space and this defect should be very definite before a diagnosis is made. It is desirable to have someone familiar with this type of X-ray picture to check the diagnosis.

The only satisfactory treatment to date is the surgical removal of the herniated material. This may be done through a small opening gained from a hemilaminectomy under avertin and ether, with removal of the disc and lipiodol. Spinal fusion has not yet been found necessary routinely following this procedure, and the average time in bed is from twelve to fourteen days following the operation. The mortality is very low, being less than .4 per cent and the patient is entirely free from his previous pain the day following operation.

An X-ray follow-up within thirty to sixty days should be done to check against osteoma or scoliosis of the spine.

CASE REPORTS

Case I.—H. S., age forty-three, white male. Past history essentially negative. Present history: June 24, 1938, patient dived into swimming pool, hit another person with his shoulder, at the same time twisting his back. At that time there was no pain except the stiffness of his neck. Four days later there was a noticeable numbness and cramping of the right gluteal region; later during the day pain radiated down the right sciatic nerve. He visited three different chiropractors within a period of a week. Although he was manipulated several times by these men, he only suffered a more severe pain. At the time I saw him it was necessary for him to use narcotics for relief. The physical examination was entirely negative except for some paresthesia over the right buttocks and an absence of the right Achilles reflex.

Laboratory tests were completely negative. The total protein of the spinal fluid was 21 milligrams per 100 millilitres. Roentgenological examination showed a definite filling defect between the third and fourth lumbar vertebrae on the right side, which was visible following lipiodol injection. The diagnosis was made of a herniated intervertebral disc. Because of the financial difficulties the patient was sent to a government hospital and there the diagnosis was confirmed.

Case II.—J. R., age forty-nine, white male. Past history: In 1935 patient fell off a train, landing on his feet and buttocks. Following this he had paralysis of both inferior extremities. This lasted approximately for one year, at the end of which time the left side was completely relieved but the right leg was still partially paralyzed. In 1936 he entered a Baltimore hospital where a complete examination was done and he was told that he had multiple sclerosis. Later that year he entered another Baltimore hospital where he was advised to have an exploration of the thoracic spine for possible cord tumor. He refused this operation. Since that time he has remained static with possibly some progression of symptoms.

Present history: He entered the Front Royal Hospital on July 12 for the purpose of further spinal cord study. Examination: The patient is normal except a mild degree of psychiasthenia. He has some hyperesthesia, and paresthesia over the lateral surface of the right thigh and a diminution of the Achilles reflex on the right side. Laboratory tests for both the blood and spinal fluid were entirely negative. Roentgenological examination of the spine after an injection of lipiodol showed a definite filling defect on the right between the fourth and fifth lumbar verterbrae. A diagnosis of herniated intervertebral disc was made. On July 22 the patient had a laminectomy of the fourth and fifth lumbar laminae. The spinal cord was exposed and retracted, underneath which was present a round hypertrophied disc compressing the fourth lumbar nerve on the right side against a hypertrophied ligamentum flava. Convalescence was uneventful except for an attack of pyelitis which was controlled in two days. All previous disability and abnormal sensation disappeared. He was discharged from the hospital on August 2, 1938. The patient should be rechecked within thirty days for possible scoliosis or osteoma. The prognosis on this case should be favorable.

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REVIEW OF LITERATURE ON MESENTERIC ADENITIS.*

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Wilensky and Hahn in 1926 reviewed the literature They reported several of the suppurative type in which intestinal obstruction was a complication. They noted that mesenteric adenitis was practically never seen in appendicitis and that in cases of mesenteric adenitis there was no pathologic change in the appendix. They also stated that in typhoid fever there occurred mesenteric adenitis with lesions in the Peyer's patches without any appendiceal involvement. They concluded that the Peyer's patches play a similar role in mesenteric adenitis, as do the tonsils in cervical adenitis—that is, the portal of entry for the infecting bacteria.

Strombeck in 1932 reviewed the literature and reported forty cases. The average age was thirteen years. He thought that the cause was probably an enteritis and that the appendix was unrelated to the disease.

Coleman in 1935 reported eighty-six cases. The average age was fourteen years. Seventy-eight of his cases were operated on and thirty of these were diagnosed correctly preoperatively. Sometimes the adenitis was generalized and sometimes ileocecal. There was no suppuration; the glands showed simple hyperplasia and the cultures were negative. The sources of infection were possible from either respiratory or intestinal tract; in winter and spring infected tonsils or recent cold, and about 90 per cent of these showed cervical adenopathy; in the summer months diarrhea occurred seven to ten days prior to symptoms. Some of his patients were pale and underweight, but more were rugged and in otherwise good health. Over half had mild repeated attacks of abdominal pain.

In the differential diagnosis from appendicitis the tenderness is quite generalized, moderate amount of tenderness in upper abdomen; may be tender over McBurney's point but there was also a corresponding area on left side.

Sixteen cases had acute appendicitis and acute mesenteric adenitis. All cases had cessation of symptoms following operation.

White and Collins in 1936 reported sixteen cases. They note a seasonal periodicity not unlike an epidemic of communicable disease. They suggest a filtrable virus as the cause.

Schrager in 1937 mentioned that the cases occurred in pale, thin children between ages of five and eleven, with hypertrophied tonsils and adenoids and cervical adenitis. He discusses the differential diagnosis from appendicitis as follows:

1. In appendicitis the sequence of symptoms is pain, nausea and vomiting, localized pain and elevation in temperature. When symptoms do not occur in this order, question the diagnosis. In mesenteric adenitis the order and sequence of events are apt to be distorted as temperature often precedes abdominal pain and reaches 102-103 in very short

*Read before the Medical Association of the Valley of Virginia, at Harrisonburg, Va., May 26, 1938.

time. Pain is greater than tenderness in mesenteric adenitis and the reverse is true in appendicitis. Nausea and vomiting not constant in adenitis cases.

2. As long as the process is confined to the walls of the appendix the patient does not look or feel sick. In mesenteric adenitis the patient is apt to feel and look ill and this is greatest single hint that we may be dealing with this condition.

3. In appendicitis pulse, temperature and leucocytosis run parallel to each other. In adenitis there is no strict parallelism and the time element varies. Patient may have high temperature six to eight hours after onset with leucocyte count above 20,000. The leucocyte count tends to be higher in adenitis. He listed the following conditions to be differentiated: intussusception, Mendel's diverticulum, abdominal grippe, pyelitis, typhoid, pneumonia, pericarditis, infectious mononucleosis and abdominal tuberculosis.

McKetchnie and Priestley in 1937 reported sixty cases from the Mayo clinic. The majority were under twenty years of age and there was no sex predominance. They found a focus in thirty-six cases, especially teeth, tonsils and sinuses. They stated that the only differences from findings of appendicitis were the frequency of previous attacks and the infrequency of reflex rigidity of rectus muscle in adenitis. They thought that even if diagnosis is suspected, operation is indicated in almost all cases. One of their patients died following operation and 25 per cent had recurrent attacks after operation.

Rosenberg in 1937 reported seventy-five cases. He divided the cases into four groups.

1. Chronic.
2. Acute
3. Acute fulminating
4. Acute suppurative.

In the acute fulminating type the patient was toxic and there was diffuse abdominal pain localizing in right lower quadrant, diffuse tenderness right lower quadrant and left lower quadrant with variable rigidity. Rebound tenderness exquisite even in lower left quadrant. Temperature 101-103, rapid pulse, white blood count 20,000 with high polys. At operation clear to slightly cloudy fluid, which was negative on culture. Small and large intestine and appendix showed diffuse injection and mesentery studded with glands.

In acute suppurative type abscess formation or generalized peritonitis occurred. In the etiology he stated that it is not tubercular; there is a seasonal incidence and foci of infection played a part. In twenty-three of his cases T and A had been done. Two-thirds of the cases replying to questionnaire after operation still had abdominal pain.

He advised cod liver oil, ultraviolet and eradication of foci. X-ray therapy was advised for those with persistent symptoms.

Brown reported thirty cases in 1937. Fifteen of the cases had recurrent attacks. There were no bowel disturbances and vomiting occurred in only eight cases. Half of the cases had dizziness and headache prior to pain. Pain not constant in location and tenderness in most cases not at McBurney's point. Twenty-two of the thirty cases had no rigidity. In twenty-five of the cases the glands were ileocecal. No recurrence after operation. He noted that 9 per cent of the cases operated on for appendicitis had mesenteric adenitis.

Adams and Olney in 1938 reported twelve cases. All were under fourteen. Eight cases were related to upper respiratory infection. Only two had localized pain in right lower quadrant, only three had localized tenderness in right lower quadrant, and four had right rectus rigidity. The white count was out of proportion to temperature, several over 20,000 and one was 41,000. In one case hemolytic-strep. was cultured from node.

The largest series was reported by Klein in 1938. He had 140 and exploratory operation was done in every alternate case of the first 100 cases to corroborate the diagnosis.

He states that the cause is absorption of toxins from intestinal tract, either bacterial in origin or products of digestion. Mesenteric adenitis is always accompanied or immediately preceded by inflammation of intestine as observed at operation. The statement that mesenteric adenitis is preceded by upper respiratory infection is not true and in only 8 per cent of the cases was there history of upper respiratory tract infection.

Eighteen per cent of children and adolescents admitted with diagnosis of acute or subacute appendicitis had mesenteric adenitis. He quoted Still's statement that 59 per cent of children on whom autopsy was done had enlarged glands.

The average age was twelve years: 58 per cent were girls.

He divided the cases into three types:

1. The first type was uncommon and only eight cases were included. They had sudden onset with

temperature of 105-106 and marked toxemia; white blood count 20,000 with 80-90 per cent polys. The pulse was rapid and throat congested. The abdomen was distended and tender throughout, especially right lower quadrant. The whole intestine, especially small intestine, was thickened and red.

2. Second type is most common. Pain recurs at frequent intervals and is most marked in right lower quadrant. Forty per cent of cases had vomiting which usually occurs four hours or more after onset. In first twenty-four hours temperature is 102-103 and white count is 18,000 with 80 per cent polys; in next twenty-four hours temperature is 100-101 with 10,000 white cells.

The patient is comfortable in recumbent position. Slight tenderness about 4 cm. to right and below umbilicus but much higher than McBurney's. There may be mild resistance but no rigidity. There is no rebound tenderness on right side when hand is suddenly removed from left lower quadrant.

When patient is turned on left side for thirty seconds the tender area shifts to left of umbilicus and is absent on right side. When turned to right side tenderness is absent on left and more marked on right than when patient was on back. When the patient is turned the mesentery and small intestine gravitate but cecum and appendix cannot be shifted. When present this sign always differentiates mesenteric adenitis from appendicitis.

3. In this type there is the same history as above but whereas tenderness can be shifted from right to left, there persist a tenderness over the cecum. These cases cannot always be differentiated from appendicitis. In these cases there is conglomeration of glands in ileocecal region and the appendix is congested and thickened. There is inflammation of ileum, cecum and part of ascending colon and the appendiceal involvement is part of the whole process. A contributing factor is the interference with normal blood circulation in appendix by enlarged glands in ileocecal angle. These patients must be watched and if rigidity occurs and poly count remains high, an exploratory operation must be done. Pathological studies showed congestion present in small number of these appendices. All glands were sterile.

Of fifty cases equally divided between operated and non-operated cases and observed one to two years, both sets had repeated mild attacks of abdominal pain.

MESENTERIC LYMPHADENITIS

The operative findings of an acute mesenteric lymphadenitis in those patients operated upon for acute appendicitis has brought this condition to the forefront as a clinical entity. The present study is based on thirty-five cases from January, 1927, to January, 1937, at the Chesapeake and Ohio Hospital. The diagnosis was not made in the years 1927, 1928, 1929, and only two cases were recorded in 1930 as compared to eight cases recorded in 1937. Because of the difficulty of differentiating acute mesenteric lymphadenitis from acute appendicitis, this study was made in order to bring out any points, if possible, to make for better diagnosis.

There are three age groups, divided as follows: Group I—ten months to ten years. Group II—ten to twenty years. Group III—twenty to thirty years. In the first group there were ten patients. There were seventeen in the second group and eight in Group III. These figures are consistent with those reported by Adams and Olney in the March, 1938, issue of *Annals of Surgery*. These authors state that the disease occurs chiefly in young people. There were twenty females and fifteen males.

Fifteen of the cases occurred in winter, six occurred in the spring, and six occurred in the summertime. Eight occurred in the fall of the year. As can be seen, there are almost twice as many occurring in winter as in any other one season.

Sixteen of the cases had an upper respiratory infection either in the form of an acute coryza or a pharyngitis. Four of the youngsters below the age of ten years had cervical adenopathy associated with sore throats. It is not known how many cases had attacks of tonsillitis as the records were not always adequate as to the tonsillar findings.

Concerning the signs and symptoms, twenty-four cases showed abdominal tenderness. Eight showed some abdominal rigidity usually in the right lower quadrant. The fever curve ran from ninety-nine to 101, but in five of the children the temperature was 102-103. Twenty-five cases showed nausea. In sixteen vomiting was a prominent symptoms. Diarrhea occurred in one. In four was there colic. The pain localities were distributed as follows: Right lower quadrant nineteen; umbilical three; epigastric one; left lower quadrant one; generalized one. We are sorry to say in a good many cases the rectal examination was not recorded. Five cases gave a history of repeated attacks similar in nature. It is interesting

to speculate as to whether these attacks continued after appendectomy.

Ten cases of the thirty-five were not operated upon. Of the ten, seven were not operated upon during the years 1936 and 1937. The usual operative findings were a diffuse enlargement of the mesenteric lymph nodes with some free peritoneal fluid and with little or no involvement of the appendix.

The highest white cell count was 21,000, occurring in a child with acute pharyngitis. The average was 8,000 to 12,000.

CONCLUSIONS

1. Many cases of mesenteric lymphadenitis are diagnosed at operation.

2. In cases of acute abdomen in children it is advisable to operate.

3. Half of the cases are associated with an upper respiratory infection.

4. The incidence of the condition is greater in winter than any other time of year.

5. The disease is primarily one of young people.

THE LEUKOPENIC INDEX IN PEDIATRIC ALLERGY.

PAUL HOGG, M.D.,
Newport News, Virginia.

Since Vaughan introduced the leukopenic index in 1934, it has been used by many as an aid in the diagnosis of food allergy. It is known that the scratch and intradermal tests are not as reliable in infants as they are in adults. Therefore it seems that this procedure should be a valuable one in pediatric allergy. Washburn's[1] rather extensive work on the variability of the white blood cell count in infants would tend to show that the leukopenic index could not be a reliable procedure. Although the infants in his series were kept on the usual foods and routine. Seller's[2] work on the white blood cell count under conditions such as rest, fasting, exercise and meals revealed a consistent, uniform count.

The leukopenic index detected the offending allergens in the following cases when the scratch and intradermal tests were negative.

Case 1. M.A.F. Age—thirteen months. Asthma, eczema and colic for one month. The mother has hay fever and the father asthma. The scratch and intradermal tests were negative to all allergens. The leukopenic index to wheat and egg showed a leukocytosis. The leukopenic index for milk showed the following: Fasting count, 9,050; one-half hour after ingestion, 7,870; one hour after ingestion, 7,000; one and one-half hours after ingestion, 6,900. This showed a drop in the white cell count of 2,150. Milk was removed from the diet and Sobee substituted with a relief of her asthma, colic and eczema.

Case 2. R.B.H. Age — twenty-two months. Asthma for five months. Uncle has asthma. Scratch and intradermal tests were negative. The leukopenic index to egg, vegetables and oatmeal showed a leukocytosis. The leukopenic count to wheat was positive. It was definitely shown that the patient could eat wheat without any symptoms so that this must be considered a false positive reaction. The leukopenic index to milk showed the following: Fasting count, 13,700; one-half hour after ingestion, 13,600; one hour after ingestion, 12,950; one and one-half hours after ingestion, 11,800. This showed a drop in the white cell count of 1,500. This patient was put on Sobee and his asthma disappeared. One month later the mother gave the baby a glass of milk and a severe attack of asthma followed. She thought that milk was essential for growth in a child.

Case 3. J.R. Age—eight years. Asthma for several years. No family history of allergy. This patient had asthma every time she went near horses. The scratch test for horse dander was positive. In doing the usual allergic work-up this patient showed a leukopenia to wheat and a leukocytosis to egg and milk. The leukopenic index for wheat was done on two different occasions which showed the following: Fasting count, 6,800; one-half hour after ingestion, 6,100; one hour after ingestion, 5,300; one and one-half hours after ingestion, 5,200. This showed a drop in the while cell count of 1,600. The second count was done three days later which showed the following: Fasting count, 7,064; one-half hour after ingestion, 5,475; one hour after ingestion, 5,150; one and one-half hours after ingestion, 4,950. This showed a drop in the white cell count of 2,114. The scratch and intradermal tests were negative.

The patient was eating wheat without having any definite symptoms. However, the mother noticed that whenever she (the patient) helped to make bread, she would sneeze and rub her nose. With this in mind, I placed some flour on the mucous membrane of her nose and she had a violent attack of asthma.

Case 4. E.D.T. Age—four months. "Colic" since birth. Father has asthma and hay fever. This baby was on breast for two weeks and then changed to a formula of evaporated milk and dextro-maltose because he cried practically all of the time. From the age of two weeks to four months he was given evaporated milk, lactic acid evaporated milk and Dryco. He had much gas, alternating loose and constipated stools and cried a great deal when on all of them. Scratch test to whole milk, casein and lactalbumin were negative. The leukopenic index to milk showed the following: Fasting count, 13,-050; one-half hour after ingestion, 12,700; one hour after ingestion, 11,300; a drop on the white blood cells of 1,750. Sobee was substituted for milk and the baby ceased to cry and gained sufficiently. After being on Sobee for two weeks, he began to refuse it. He was then given a formula of cultured lactic acid milk. This gave even better results than Sobee. When Pablum was added to this patient's diet, he developed asthma.

Case 5. E.M. Age—eleven weeks. "Colic", loose stools and vomiting. No family history of allergy. On breast for ten days and since then has been on evaporated milk, goat's milk and alacta. Leukopenic counts were done for evaporated milk, whole milk, cream of wheat and Mull-soy. The leukopenic counts to whole milk and evaporated milk were positive. Cream of wheat showed a slight leukocytosis and the count for Mull-soy dropped 100 which is considered negative. The counts were as follows:

	Whole milk	Evaporated milk	Cream of Wheat	Mull-soy
Fasting count	5,600	5,500	4,075	4,900
One-half hour later	4,150	4,500	4,110	4,825
One hour later	3,700	3,650	4,300	4,800

The baby was put on a formula of Mull-soy and his symptoms subsided.

I believe that it has been shown from these cases that the leukopenic index is of value in pediatric allergy. In the first three cases the patient received a complete allergic work-up along with leukopenic counts to milk, egg and wheat. The leukopenic index made the diagnosis in these cases after the scratch and intradermals had failed. Case four only had the scratch test and the leukopenic index. Case five had only the leukopenic counts to foods.

SUMMARY

It seems worth while to include leukopenic counts to at least, milk, egg and wheat in the allergic study of any infant or child.

NOTE.—Cases 1, 2, 3, and 5 are from the records of the Babies Hospital, Wilmington, N. C.

REFERENCES

1. Washburn, A. H.: Blood Cells in Healthy Young Infants. *American Journal Diseases of Children,* August, 1935, Vol. 50, 413-430.
2. Zeller, Michael: The Leukopenic Index. *American Journal of Medicine Sciences,* May, 1937, Vol. 193, pp. 652-657.

Corner 31st and West Avenue.

WHAT OUR PATIENTS THINK.

ALBERT J. RUSSO, M.D.,
Baltimore, Maryland.

In our association with that group of individuals labeled as "patients", we as medical men have erred immensely in treating the mental attitude relative to anatomical complaints. One is struck with the fact that this gist of humanity, coming to us as it does injured with the variegated troubles that protoplasm is heir to, falls prey to illusions and misrepresentations of disease entities. Perplexed and concerned with symptomatology defined as disease, a pathological patient comes into our office bereft of the nicety and calm which once controlled a palpitating heart. The individual voices much in verbage, but, since we have accustomed ourselves in becoming deaf to the unnecessary and eager to the pertinent, we manage to sift the importancies. Satisfied that the monologue has dwindled down to diagnostic dimensions, we proceed to advise our patients in therapeutic terms. After worrying our patients with tongue-twisting nomenclature, we somewhat vaguely make it understood that hospitalization is necessary. From this

point, the patient builds worse than he knows and constructs ill-fated hospitals with all their whiteness and all their secrecy. Hurried into a world which at an earlier time existed for iron-jawed surgeons, the unsuspecting patient suddenly becomes a member, a disciple of an institution whose theories and practices were gathered from the back fence league of nations collected in the form of news monging neighbors.

Having passed the portals of entry, the patient with some difficulty and originality, manages to get a complaining anatomy into a puzzle-shaped gown. Already in the throes of a disease-enemy, he or she is immediately introduced in a half-scared but half-sacred manner to a bespectacled individual with a stethoscope bulging from one pocket and a reflex hammer from another. In some weak way the patient knows that the only purpose that a stethoscope has in being so conspicuous is to prove that he or she has a bad heart. And so the pulse, in accord with the physiology of a palpitating heart rises in frequency; meanwhile thoughts that he or she might live are notoriously dying. Unlooked-for sympathy and an obliging bed-side manner soon overcomes the bridge of restraint and slowly but surely words come. Momentarily, the patient is overcome by an unmistakable smell simulating celestial odor but sometime later in the privacy of the chamber or during words in the ward, the realization comes that it is nothing but matter-of-fact ether. Worry becomes increased and the desire for complacency and quietude of disposition are no longer intact, these noble attributes becoming far flung but somehow restrained by a tighter clutch on a cumbersome pocketbook. Nurses, doctors, Baumanometers, needles, blood counts, urine analyses in unending stream play on the anatomy or confusion of the patient. All of these procedures are done without much explanation to the patient who lies down bedridden only to be hourly awakened by a needle or a palpating hand. All the while physical strain and mental anguish are getting worse and tend only to grow sweet with the thought that operation on the morrow will encourage forgetting. An air of efficiency is given the place by the hurrying white-coated attendants. During the night nurses go up and down the halls with small blocks of ice clinking in glasses like cow-bells in a pasture and to this the patient attempts sleep.

By this time the patient begins to wonder what she has. Is it my appendix or my ovaries that is giving me trouble? Where is the cussed appendix anyway? If it ruptures, will I die? The doctor said I had ovaries; what are they for? I think that's where babies are born, or are they supposed to control emotions and menstruation? The doctor said my hemoglobin is ninety; what's hemoglobin, and is ninety good or bad? I wonder why they keep sticking me with those darn needles all the time? Will the hypodermics make me a drug addict? And so the queries mount until the patient is one big mess of quandary and question. So many things done routinely in a hospital, while simple enough to the doers, take on the aspect of some grave procedure, and a word or two properly given will aid much in maintaining mental peace. The role of the hypodermic is explained by the sleep which follows it or the relief from pain. Intravenous medication is interpreted as some scientific way of treating disease with fancy drugs. The prick of a needle for smears, white or red counts, means that something is floating in the blood stream and must be delivered therefrom. Vague ideas that the circulation is everything from a cooling system to a fluid containing the emotions in solution are harbored by the sickly individuals. The intricacies of the pumping heart, the peripheral pulse, and digestion are passed over nonchalantly during the period of health, but immediately upon becoming hospitalized a new and misunderstanding note is given these phenomena.

It would appear to the writer that a teaching institution with its embryonic medical men combing the wards with cigar boxes laden with pipettes, slides and solutions, with their almost shy manner of bedside approach, and with an artificial professional air, have much to do in the moulded opinions of the hospital population. Many students have noted the amazed countenance on patienthood. While their position of comparative insignificance, as far as the many problems in differential diagnosis are concerned, does not perplex the patient, it is most comforting to the sickly ones that another individual is in sympathy with an abnormal appendix, gallbladder or whatever the case may be. Certainly our patients who manage to live through admittance examination, sophomore meddling, junior ward rounds, and senior investigation must be thoroughly impressed with the concern if not the completeness, of our attempts at diagnosis. Some patients dwell on the thought that they are naught but textbooks and that their pages are leafed and turned with all the

fervor of a novel. This procedure is appreciated by some patients but others, whose threshold of excitability is notably low, become obviously griped, lose loveliness of ladyhood, and become roaringly refractive to young up-starts insistent on doing a blood count. Most patients have nothing but disdain for student needle-work and only a small number, upon completion of the smear and pipette filling, are rewarded with thanks. This is not always due to the indisposition of the patient as it is to the lack of explanation given by the student doing the work.

A few words to the effect that the blood study is to show what effect the local condition has on the system as a whole will in many cases prevent an unkind thought to be kindled in the mind of the patient. Generally their thoughts are premeditated and patients know, by their vague way, that you are absolutely on a "hurting" intention and that their most tender places cannot escape those long, subtle fingers. They take care that most severe contemptuous distortion of the features are enough to indicate the sorest spot on the belly. They think nobly of the diagnostician who palpates the normal side first and approaches the complaining area lightly but positively. Any abrupt, unexplaining digital thrust into an intensely tender gall-bladder will not evoke any gentle thought on the part of the patient and, as a result, the opinion does not play on the sweeter side when the patient is again back in community circulation.

Patients relegated to a life of the hospital bed have new problems to meet and to serve. Where they were once ambulant and lived in the ecstasy of the family, friends, home cooking, and the bathroom, they now have to accustom themselves to a routine of an unordered diet, hypodermics, alcohol rubs, bed baths and bedpans. Sleep does not come easily on the first night, and until telepage, hurrying nurses, and visiting doctors become commonplace to the patient, the individual must struggle the best he or she can. Newness makes for unrest. Kindergartened into a new environment, it requires some hours before familiarity allows uninterest in all of this extra-curricula. The new home is made more hospitable by smiling nurses and their unique way of fixing bed sheets. Patients wonder at the rapidity with which nurses deftly handle their many tasks. Perhaps it is the nurses who give the patient the first feeling of niceness. It is given to the doctor to continue the filial feeling. While lying helpless, there is always back-grounded the thought that it will be so good to walk again in the sunshine and assume the tasks of civilian life. Things which were done on the outside by the patient consume much of the idle time not taken up by books and needles. Friendship with a neighbor patient is made and any eavesdropping into their conversation will tell much as to what they think about the whole matter. After making diagnosis of each other's illness, the loss of words and wisdom is remarkable. Certainly they must have discussed the doctors, the nurses and the drugs to which they owe some degree of good. Human nature dwells on the problems which are of immediate concern to the parties involved. A study of the thoughts expressed will reveal many to be useless, unnecessary, and non-contributory. However, since there is some good in everything, it occurs to the writer that many of the word thoughts given in this paper are those of the patient's inward self. Imagination has to be most vivid to include all unusual thinking processes evolved by a disturbed brain.

It is not right to allow our patients to reach their own conclusions about their diseases, especially when their ideas border too closely on the malignant side of a benign condition. The ill effects produced by telling the patient she has a ptosed transverse colon would in a great measure be alleviated by giving the patient a few encouraging words. Merely mentioning a few big words about the colon and endeavoring no explanation is a good way to make the patient "colocentric" and worrisome about a condition which is probably normal anyway. Ovarian cysts when removed should be explained to the patient and not indelibly fixed as an insult to injury by saying that "besides the appendix, we took something else out". Consider for a moment the supreme interest the patient has in her own condition. She does not understand the complex nomenclature used nor does she understand the hurried, brief statements made by the busy doctor who dismisses anatomical simplicity by a vague statement upon which the patient attempts solution all the day long. Obviously, she does not understand those other things "which we took out". Remember if you will, the many hours to which the patient has access while lying in bed for ten days reflecting and misinterpreting ambiguity. An insight into the post-operative worry will reveal that many tears have overflowed the puncta and spilled themselves over a disturbed countenance

merely because the patient was not told what was done and was left painfully alone to dwell on question marks beneath the incision.

It does not require much recollection to recall many patients in the wards who were operated upon some years before and who did not know whether they have one or two ovaries. One patient stated that both her ovaries and her "womb" were removed but she was still menstruating. Obviously this conclusion was her own and not the counsel of the doctor who no doubt did a marvelous surgical procedure but gave an insignificant follow up conversation with the patient. Perhaps for some hippocratic reason it was decided to keep the patient in total ignorance. The rationale of the latter choice is not clear to this writer. Patients enter the hospital and don't know whether they have one or two Fallopian tubes and if the incision is midline, they can't tell you whether it was the right or left which was removed. In solving the tears of one patient it was disclosed that the doctors "took something else out besides the appendix", but this something else was never explained to the patient whose part in the matter made no difference other than that she was the patient. The patient began to harbor ideas that her intended marriage would have to be cancelled because this "something else" made her sterile! A look on the chart showed that a small cyst on the right ovary was punctured and the walls removed. What relief came to that anguished woman when she was informed that she had a small cyst on the ovary and it was removed merely because it might have gotten larger and caused symptoms in later life; that its finding during the appendectomy was incidental. How relieving and tear-sparing are the doctor's words when he endeavors simple explanation! There is no logic in letting our patients become "hysteroid" merely because we neglect to inform them about findings which are obviously benign. However, it is true that in certain cases we must cultivate the gift of taciturnity, that our patients may not weep. Herein, comes the prudence and judgment of the doctor.

It would be interesting and novel indeed to delve into the results of a questionnaire handed to patients during their hospitalization. Such a plan would give an abundance of information and instruct us just what perplexes patients about their diseases and their doctors. Through this medium we could learn what our patients think about while they lie down between pains—thinking, thinking, and making much ado about nothing.

U. S. Marine Hospital.

Miscellaneous

T. B. Diagnostic Standards.

"Diagnostic Standards", tentative edition 1938, of the National Tuberculosis Association is now ready for distribution. Several important changes have been made in the classification of tuberculosis in this edition. The terms "primary tuberculosis" and "reinfection tuberculosis" are used to replace "childhood type" and "adult type" respectively. The term "unstable" is now employed to describe cases formerly classified as "improved" and "unimproved".

In the chapter "Pathogenetic Development of Pulmonary Tuberculosis" primary and reinfection tuberculosis are discussed clearly and in considerable detail. The differentiation and the clinical significance of these two types are clearly outlined.

Under "Clinical Course of Tuberculosis Control with Pathological Conceptions" an attempt is made to correlate for the clinician the clinic symptoms and the pathological processes.

"Diagnosis of Tuberculosis", primary tuberculosis, is discussed separately from the reinfection type and the importance of the history, symptoms, both constitutional and local, are described in detail for both the primary and the reinfection type of tuberculosis.

Discussion of "Classification of Tuberculosis" an entirely new form for the classification based on pathology is included. This will be of great benefit to sanatoria physicians, and tuberculosis specialists, but is hardly applicable to internists and general practitioners.

Under the heading of "Tuberculosis Control" the authors emphasized the importance of discovering and effectively segregating patients with readily communicable forms of tuberculosis if further control of the disease is to be made. They state that tuberculosis had been almost eradicated from the cattle of the United States. Emphasis is placed on the importance of wholesale, periodic, clinic and laboratory examination in order to locate the early or unsuspected case.

The technique of the intradermal tuberculin test using old tuberculin and the new Purified Protein

Derivative is described in detail with interpretation of results and contraindication for its use.

The technique of the demonstration of tubercle bacilli by the direct smear, by concentration method, and by cultural and animal inoculation are adequately discussed. The difficulties incurred and the importance of accurate X-ray films is emphasized in the concluding paragraph.

This little book, consisting of thirty-two pages, may be secured for ten cents from the Virginia Tuberculosis Association, Atlantic Life Building, Sixth and Main Streets, Richmond, Virginia.

EDGAR C. HARPER, M.D.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for the month of December, shows the following cases as compared with the same month in 1937.

	1938	*1937*
Typhoid and Paratyphoid Fever	5	12
Diphtheria	167	135
Scarlet Fever	165	197
Measles	108	439
Meningitis	6	16
Poliomyelitis	1	2
Rocky Mountain Spotted Fever	0	0
Typhus Fever	2	0
Undulant Fever	1	3
Tularemia	52	17

DIPHTHERIA DRIVE CONTINUED

A state-wide program for a more general use of immunization against diphtheria has been initiated by the Virginia Department of Health. The need for such a program at the present time is evidenced by the fact that a forty-four per cent increase in the recorded prevalence of this disease was observed for the last six months of 1938, as compared with the same period in 1937.

In those counties of the State which maintain full-time local health departments, the already existing programs have been enlarged and strengthened. In counties not served by local health departments a program of education and assistance in the organization of local immunization clinics has been developed. The Department of Health sends a field personnel unit into these counties to help arrange and organize clinics. The school officials and school children participate in the educational program and in addition take an active part in the organization of the clinics.

Special emphasis is being given the need for immunization of infants and preschool children, since it is this group which is responsible for the continued high mortality rate of diphtheria in Virginia.

The physicians of the State are asked to conduct the clinics in their communities in accordance with the custom of such practice.

In several counties the activities have been attended by considerable local enthusiasm and success.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.
President-Elect—MRS. HENRY A. LATANE, Alexandria.
Corresponding Secretary—MRS. PAUL PEARSON, Aylett.
Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

Happy New Year!

1938 is now history. 1939 is here, with all its possibilities, and all its mysteries—for who can tell what a day will bring forth?

We look forward to a year of privilege and pleasure in the service of the cause so dear to our hearts; yet we must face the facts. These are days which demand careful thought, careful planning, and careful consideration, if peace and harmony shall continue with each other and all mankind, if the profession to which we have pledged our best efforts shall carry forward its high standard and useful service in the interest of suffering humanity.

In the spirit that we meet 1939 with " A HEART FOR ANY FATE", but with a hope that it brings us a year of happiness and progress, I am

Yours for peace,
ELLIE COCKE CAMPBELL.
(MRS. HAWES CAMPBELL.)

To the Public Relations Chairmen:

The State Chairman of Public Relations urges each chairman of local auxiliaries to mail a report

as soon as possible. Without your help, she will not be able to give a complete report of work at the Mid-Winter State Board meeting. Please try to mail reports before the last of February.

(MRS. J. W.) HAZEL JANE REED.

The Woman's Auxiliary to the Norfolk County Medical Society,

At a meeting on January 11 at the Southland Hotel, made final plans for a card party and fashion show to be held at the Town Club on the afternoon of January 31. The proceeds from this party will be used for the Auxiliary's charity work, a part of which is the maintenance of a patient at the Victory Memorial Hospital for the tubercular.

The Auxiliary furnishes several layettes each year to the King's Daughters Clinic for infants whose parents need this particular help. At this meeting a layette shower was given by the members and four layettes were completed.

Mrs. Hawes Campbell, president of the State Association, and Mrs. Reuben Simms, state treasurer, were special guests at this meeting. Mrs. Campbell gave an interesting New Year's talk on thoughts in vital health topics of today.

At the conclusion of the meeting, lunch was served, during which time Miss Carol Simpson gave a selection of tone poems.

Mrs. Millard Savage, president, presided.

(MRS. B. D.) EUGENIA H. JONES,
Chairman, Press and Publicity.

Greetings from the Mid-Tidewater Medical Auxiliary.

This Auxiliary extends hearty New Year greetings to the officials and sister Auxiliaries of the State.

At our October meeting, we were inspired by a splendid program, larger attendance, renewed interest, and a delicious lunch, which we always have whenever going to Millers Tavern. We cannot help but boast of our attendance at this particular meeting. The doctors also had a large attendance. Here's hoping they may be realizing more fully what the Auxiliaries do and can mean to them. If they are interested, I am sure their wives will fall in line, therefore making a special effort to become a member of an Auxiliary and attend whenever possible.

Even though we are few in number (compared to some) and young as an organization, it is our earnest plea that you endeavor in this New Year to become re-inspired, helping whenever called upon, and never failing to do your part.

At our January meeting, Cancer and Its Control was the topic of discussion. Dr. Wright Clarkson, of Petersburg, spoke on "What the Foundation Expects as a Result of this Work and How We as a Small Group Can Help Make These Expectations Come True."

Mrs. Joseph Bear, of Richmond, spoke on "The Work of the Woman's Field Army."

Mrs. Hawes Campbell, our State President, is also president of the Tidewater Auxiliary. Serving her as State and local corresponding secretary, I, personally, feel we are most fortunate in having this fine, loyal and interested woman as our leader. May she have our whole-hearted cooperation, which she rightfully deserves.

(MRS. PAUL) VIRGINIA MC.G. PEARSON,
State and local corresponding secretary.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Lederle Laboratories
- Solution Epinephrine Hydrochloride 1:1000, 1 fluid ounce bottle.
- Solution Epinephrine Hydrochloride 1:1000, 1 cc. ampoule.
- Solution Epinephrine Hydrochloride 1:1000, 5 cc. vial.

Eli Lilly & Company
- Tuberculin Ointment (Wolff)—Lilly.

The Upjohn Company
- Hypodermic Tablets Strophanthin 1/200.
- Hypodermic Tablets Digitalin (0.00065 Gm.) 1/100 grain.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Immune Globulin (Human).—A preparation of globulins made from human placental blood and containing immune factor or factors against measles. The immunizing potency of the product is determined on the basis of the diphtheria antitoxin titer of the placental blood. Immune globulin (human) is useful in the prevention and modification of measles. It is equivalent in usefulness to convalescent serum but has the advantage of universal availability. It has the disadvantage of producing reactions not always mild. Most reactions, however, can be avoided by administration of the proper dosage. It is useful in the prevention of measles in institutional cases in

larger doses than those given for modification. Protection should not be attempted until definite exposure has taken place. Immune globulin (human) has also been used (with caution) in the treatment of measles.

Immune Globulin (Human).—(Placimmunin).—A brand of immune globulin (human)—N.N.R. It is marketed in packages of 2 cc. and 10 cc. vials, each sealed with a rubber diaphragm. E. R. Squibb & Sons, New York.

Diphtheria Toxin-Antitoxin Mixture, 0.1 L+ (Goat).—Each cubic centimeter represent 0.1 L+ dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin obtained from the goat. Marketed in packages of three 1 cc. vials, and in packages of three 1 cc. syringes; in packages of thirty 1 cc. vials; and in single vial packages containing, respectively, 10 cc., 20 cc., and 30 cc. The Gilliland Laboratories, Inc., Marietta, Pa.

Antipneumococcic Serum (Felton) Type II, Refined and Concentrated.—An antiserum (New and Nonofficial Remedies, 1938, p. 399) containing predominantly antibodies of type II pneumococcus (Diplococcus pneumoniae) prepared by immunizing horses with killed cultures of highly virulent Diplococcus pneumoniae isolated from lobar pneumonia. The product is refined and concentrated by the method of Dr. L. D. Felton and contains antibacterial properties against type II Diplococcus pneumoniae. The finished product contains some type I pneumococcus antibodies. It is marketed in two packages of one syringe, one containing 10,000 and the other 20,000 Felton units of type II Diplococcus pneumoniae; each package contains also a vital of normal horse serum for reaction test. Parke, Davis & Co., Detroit, Mich.

Thiamin Chloride—Squibb.—A brand of thiamin chloride—N.N.R. (The *Journal A. M. A.*, July 16, 1938, p. 253). It is marketed in the form of ampules, 1 cc., and tablets, 1 mg. and 5 mg. E. R. Squibb & Sons, New York.

Protamine, Zinc & Iletin (Insulin, Lilly), 80 Units, 10 cc.—Each cubic centimeter contains 80 units of insulin, together with protamine and approximately 0.16 mg. of zinc. Eli Lilly & Co., Indianapolis, Ind.

Protamine Zinc Insulin—Squibb, 80 Units, 10 cc.—Each cubic centimeter contains 80 units of insulin, together with protamine and approximately 0.16 mg. of zinc. E. R. Squibb & Sons, New York.

Mead's Cevitamic Acid Tablets.—Each tablet contains 25 mg. cevitamic acid (New and Nonofficial Remedies, 1938, p. 480) equivalent to 500 international units of vitamin C. Mead Johnson & Co., Evansville, Ind.

Book Announcements

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Beecher, H. K.—The physiology of anesthesia.

Buckley, C. W.—Reports on the chronic rheumatic diseases. No. 4.

Carleton & Leach—Histological technique for normal tissues, etc.

Clark, C. H. D.—The fine structure of matter. Vol. 2, pts. 1 and 2.

Clark, W. LeG., *et al.*—The hypothalmus.

Drinker, C. K.—Carbon monoxide asphyxia.

Fotos & Bray—German grammar for chemists and other science students.

Gask & Ross—The surgery of the sympathetic nervous system.

Goldberg, I.—The wonder of words.

Gurwitsch, A. G.—Mitogenetic analysis of the excitation of the nervous system.

Haitinger, M.—Fluorescenz-mikroskopie.

Jacobsen—Progressive relaxation.

Johnson, J. E.—Socialization of medicine.

Moon, V. H.—Shock and related capillary phenomena.

Orr, D. W.—Health insurance with medical care.

Russell Sage Foundation—American foundations for social welfare.

Szent-Györgyi, A.—Studies on biological oxydation and some of its catalysts.

Underwood—Textbook of sterilization.

Vallentin, A.—Leonardo da Vinci.

Our Common Ailment. Constipation: Its Cause and Cure. By HAROLD AARON, M. D., Medical Consultant to Consumers Union of United States. Dodge Publishing Company. New York. 1938. A Consumers Union Publication. 12mo of 192 pages. Cloth. Price, $1.50.

This book is above the average of its kind. Dr. Aaron knows his subject and "talks" about it very readably. He debunks the bowel movement once a day, discourages the indiscriminate use of laxatives, decries the use of too much roughage in the diet and "blows up" present day high pressure laxative advertising.

The only laxatives he suggests for use are mineral oil, milk of magnesia, agar, and cascara sagrada. He advises that all others be taken only on advice of a physician.

His description of the structure and function of the digestive tract is well written for readers not scientifically trained. It is one of the few popular books on a scientific subject I have seen recently which has not been "overdone".

S. S. N.

The Technique of Contraception. An Outline. By ERIC M. MATSNER, M. D. Foreword by Frederick C. Holden, M. D. Fourth Edition. The Williams and Wilkins Company. Baltimore. 1938. Pamphlet of 50 pages. Illustrated. Price, 50 cents.

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Editorial

The English Backdrop.

A recent article in the *Virginia Quarterly Review* entitled MEDICINE AND THE PUBLIC, written by John P. Peters, smart and doughty spokesman of the Committee of Physicians for the Improvement of Medical Care, may be taken as portraying in its latest mold the temper and beliefs of an increasingly militant section of the American Medical profession. The article begins with an indictment: "The American public and the medical profession have remained uninformed or misinformed about European experiments in the dispensation of medical care and suspicious of attempts to initiate similar experiments in this country." It frankly advocates sweeping changes in the existing American medical set-up, declaring among other things: "There can be little doubt, from the experience in Great Britain and other European countries, that the adoption of health insurance, conventionally patterned, would improve the health of the people at large and the economic status of the physician." It ends by asking: "Will organized medicine, by offering cooperation, aid in the development of an intelligent comprehensive plan for the provision of medical care, or will it wait until some system is imposed upon the country with defects that can be removed only by years of further effort?" Here is obviously reflected some of the impatience of Dr. Hugh Cabot who is said to have urged before the National Health Conference last summer, "Get over this survey business and get on with the war."

This European experience, which Dr. Peters declares it has become an American tradition to ignore, can be found in the reports of the British Royal Commission on National Health Insurance, Political and Economic Planning on the British Health Services, and the Committee on Scottish Health Services. Two recent books will be found more up to date, more readable, and more generally useful to American doctors and laymen seeking first hand acquaintance with the English experience with health insurance.

The first is a volume by Douglass W. Orr, M. D., and his wife, Jean Walker Orr, entitled HEALTH INSURANCE WITH MEDICAL CARE, THE BRITISH EXPERIENCE. This book is based upon information gathered at the source. The authors interrogated the recipients of health insurance, artisans, housewives and clerks, in their homes, in hospitals, in clinics, on the street and at their places of business. They called upon the panel doctors themselves, saw them at work and asked them searching questions. They did not neglect other more usual sources of information—the social workers, the insurance companies and government officials. Whoever reads this book will feel that the authors have done a good job, a creditable piece of case reporting. It describes very clearly the English panel system and how it works. At the end

the reader is convinced that the English doctors like the system and profit by it and that the English people like the system and are probably healthier under it. No less a person than Lloyd George declares in the foreword: "The nation would as soon think of abandoning it as it would of abolishing the post office."

The American doctor who reads the book will see in the panel system a very crude and limited type of service, a kind of family practice in which only the head of the family is entitled to medical care, from which the specialties and the usual diagnostic aids to which American doctors are accustomed have been omitted, in which the needs of women during pregnancy and the puerperium have been forgot, and in which no provision for hospitalization is to be found. He will find that the panel doctor receives about $2.25 annually for each patient on his panel and that the average panel carries about 1,000 patients. Although the American doctor is told that this represents three times the average annual per capita collection of the average British practitioner prior to the establishment of National Health Insurance in Great Britain, he will not consider this adequate remuneration. It must appear from the book of the Orrs that the panel system in England is a bungling and imperfect scheme of health insurance. That it pleases the British profession and British public seems due to the fact that medical care of the people is better under it than it was before. One gathers that the English people like it but that they would like better a better system. For Americans the moral seems to be that health insurance as a principle can be made to work both to the advantage of the public and of the medical profession but that when we adopt a system in this country we should beware of the limitations and mistakes of the present British National Health Insurance.

The second volume which the reader is asked to consult is less impressive and more brutally frank in its analysis. SICKNESS INSURANCE IN EUROPE by J. G. Crownhart has a chapter devoted to the English system. In summary this author believes that democracy of management does not exist in the English system, that the medical service rendered is often just "a look and a bottle", that clinical records exist according to law but not in general practice, that the physician is inclined to unload the time consuming case, that certification for cash benefits is the doctor's dilemma, that lay sick visitors check on doctors and patients, and that the free choice of physicians by patients has its limitations. In the words of the report on the British Health Service, "Excessive numbers of panel patients and excessive demands for certificates and returns of all kinds quickly reduce the general practitioner to an agent for making out prescriptions (too often for mere palliatives) and for operating more like a sickness licensing and registration system than a health service."

A Time for Action.

There begin to appear indications, clear and definite, that the Federal government, having failed with its trial balloons to stimulate the activity it desired among the medical profession, will shortly take matters into its own hands and set up a program for the care of the sick to which the profession in this country will be compelled to adjust itself whether it relishes the dose or not.

It is not intended here to discuss the grave problem of so-called State medicine. But certain bald facts require emphasis and certain immediate considerations are crying for deep and earnest thought. The astonishing advance in the science of medicine in the past quarter of a century is universally admitted and acclaimed. The tremendous burden of charity work borne by the profession from time immemorial is likewise beginning to be recognized on all hands. But whereas the science of medicine has grown ever more acute and beneficent, and the philanthropy of a great profession has continued to spread its alms among the indigent sick, the economics of medicine in its relationship to the great, struggling, underprivileged population, seeking as best it can to pay its way, is laggard to a degree deeply to be regretted.

Much time and talk have been spent—and largely wasted—in the past five years. Alarm over the suggestion of interference by outsiders with the sacred traditions of the profession has been calmed, as a rule, by self-assuring debates and complacent contemplation of a record filled undoubtedly with noble aspirations and heroic achievements. Now and then a voice in the wilderness has warned of a changed social order, of a need for adjustments different from all previous needs, of the actual imminence of that interference from the outside unless there appeared from the inside a spontaneous response to this need. Here and there has appeared some heed to this warning and localities scattered thinly across the continent have undertaken in some manner to

meet the issue squarely. But the profession as a whole has seemed to prefer to drift along its accustomed currents, and its official mouthpiece, the American Medical Association, has contributed nothing to an awakening, but rather the reverse.

In the meantime, a single stark fact has remained unaltered in its terrific import, namely, that millions of Americans in the low-income brackets are suffering from lack of medical care although there are in this country 35,000 more doctors than its entire population actually needs. It is foolish to imagine that this fact with its insistent appeal will be allowed to go unattended while unproductive debates drag along through months and years. If the science of medicine is unable or unwilling to meet this demand of the economics of medicine, and thereby preserve the best of its traditions, somebody is assuredly going to do something about it, perhaps in a less agreeable manner, and the Federal government is leaving no doubt as to who that somebody will be. Not infrequently there appears within or without the profession a query whether organized medicine will itself develop an intelligent, comprehensive plan for the provision of adequate medical care or whether it will allow the imposition upon itself and the country of some obnoxious system that will require further years of effort for correction.

Upon the answer to this question much depends for the future of medicine, not only in relation to itself, but also in relation to the sick Americans who are its wards. And signs are multiplying daily that the answer can actually be no longer delayed. What, then, is to be done about it, not elsewhere by others, but here at our own doors and in our own State by ourselves? Fortunately, there seem to be things that may yet be done, if we have the will—important things.

The catastrophic effect of illness upon the family of limited means appears mainly in two forms—hospital bills and doctors' bills. Community non-profit group hospitalization plans, now springing up in every section of the country, have largely removed the first of these and will probably thoroughly accomplish this as wider experience leads to expansion of benefits and reduction of dues to a level embracing practically the entire population above the indigent level. It is a source of gratification that Virginia has not lagged in this great movement. Successful plans are already in operation in Richmond and Norfolk, and smaller but promising plans in several other localities in the State. Not only are new subscribers flocking to these havens, but the plans themselves are periodically absorbing more and more of hospitalization costs at the same time that they are extending their spheres of influence geographically as well as vertically in the body politic. Especially is this admirable effort visible in Richmond, of which we speak in particular because of a better knowledge of its affairs. At this moment the administration of the Richmond plan is preparing to open its benefits to other cities and outlying territories not already otherwise covered. Herein lies a definite suggestion for our first major step.

Should not the Medical Society of Virginia now recognize officially the excellence of work that has been demonstrated by these localities within its bounds, encourage further effort upon this model, or, better still, lay immedately the groundwork for a State-wide distribution of these notable benefits? There is no question that this could be effected and that the plans already in existence would lend themselves heartily and admirably to a co-ordinated system of some sort, the details of which need not be considered at this time.

With hospital bills adequately met in this manner, there yet remains the much more complicated problem of doctors' bills—to say nothing of bills for drugs and nursing. It is not possible here to analyze the various expedients that have been adopted here and abroad to solve this problem. Much has been written, for instance, regarding the British panel system. That this has met with great popular esteem in England is beyond question, but neither is it beyond question that, with its benefits limited to such service as can be rendered by the general practitioner, it is far from what appears to be required in this country. Short of outright governmental regulation—which we earnestly hope never to witness—two main experiments are in progress in America where anything is being done at all. One of these takes the form of a group of physicians, privately organized, offering comprehensive service to a large number of families and individuals on a small annual fee basis; this plan has met with considerable success in certain localities; it has also been productive of great dissension within the profession, culminating in the present Federal indictment of the American Medical Association itself. The other attempts to accomplish the same object upon the same annual fee basis, but under the auspices of the local organized profession

as a whole and on a community-wide basis, with the contracts held and administered by the medical society itself; this plan has had some success but more of failure; one of its chief drawbacks is its imposition upon the profession of administrative duties for which it is poorly qualified to say nothing of overhead expenses which may, at least at the outset, be beyond its reach.

But another alternative exists and after much groping for a solution, one may well finally come to this as offering perhaps the most hopeful outlook yet visible. If there could be evolved a dependable and safe coverage of doctors' bills similar to the present coverage of hospital bills and the two coverages could be administered by the same organization, with the doctors supporting the former as the hospitals are already supporting the latter, a solution of the problem would appear to be possible. The great difficulty lies in the development of a method by which this desideratum can be effected. There is a growing feeling in certain quarters that this difficulty is not insurmountable. Two major factors are involved. One of these is economic and is the affair of the administrative organization. Actuarial data will have to be acutely studied with reference to a subscription rate sufficient to insure a sound existence of the plan. Here it will be of fundamental importance to establish this rate at the lowest possible level so as to bring it within the reach of those in greatest need. Tied up with this economic factor is the second or professional factor which not only envisages spirited and whole-hearted cooperation by the doctors, but also necessitates a willingness upon their part to enter into an agreement for a modification of fees for holders of these low-income contracts. In no other manner, it would seem, could the administrative organization insure adequate coverage and yet keep its subscription rate at the low level indicated. This suggestion of a universal reduction in fees under this system may meet the impact of startled resistance at first glance. Many doctors are themselves in the low-income bracket. In 1929 one-third of all private practitioners in the United States earned annually less than $2,500 a year. There is no reason to believe this situation has improved; perhaps it is today not even so favorable. The thought of a possible further reduction in such incomes would naturally prove shocking to the profession. But the danger of such reduction under the modification of fees suggested is more apparent than real. Contracts under this system would be extended only to individuals and families with incomes expressing actual need of such consideration. The doctor in some instances would doubtless face reduction in individual fees from the upper levels of this composite bracket; but from the middle levels, the agreed fees would in many instances represent an increase over those to which he was accustomed; and in the lower levels, where his work has been often or even usually, without compensation, fees would begin to appear where they never existed before. In the final analysis, therefore, in spite of a reduced fee schedule, which need not necessarily involve a rigid system but could perhaps in some manner be made elastic and adjustable to individual requirements of patients, the doctor's annual income would probably exhibit no decrease and would actually in greater likelihood display the reverse of this. Furthermore his bills would be paid immediately, and directly to him, by the administrative organization, and collection difficulties and cost would disappear completely from this group.

If one could picture, therefore, a non-profit community organization, operating with a degree of liberality which can never be matched by commercial organizations and covering its territory with protection from the heartache and the financial load represented by both medical and hospital bills, it would seem that dawn might be breaking upon a darkened sky. The nucleus of such an organization already exists in the hospitalization plans; it needs but the whole-hearted cooperation of doctors and the continued sound management by the public-spirited business men already associated with these plans to expand them into the field of medical cost coverage also. The picture would then become a reality—and again the medical profession would measure squarely up to its responsibilities and its ancient honorable traditions. Shall we recognize this opportunity and push forward into the path that seems to lie just ahead? There are intimations, direct from Washington, that the government would be deeply impressed by community coverage of this sort and might go so far as not only to recognize these local units as sufficient, without further intervention on its part, but actually, if they proved successful, to utilize them for the distribution of Federal funds for medical care in the class of outright indigents. Surely this would represent a goal worthy of great effort—the unification of all activity relating to the care of the

sick in both the indigent and low-income groups, with no actual disturbance of the fundamental medical standards so significant to the profession, and yet with a degree of efficiency that promises a real solution of what must be recognized as perhaps the gravest internal problem facing the American public today. Furthermore, each community, large or small, would direct its own affairs, modified as might prove necessary to meet local conditions—something vastly different from a general system of national scope that might prove admirable for New York or California but inapplicable to the point of serious deficiency in Texas or Virginia.

The extraordinary importance of the possibilities imminent in the plan of coverage suggested above is indicated in efforts now being bent in this direction in several large American cities, either through the local medical societies or else in the local group hospitalization organizations. It would seem that experiences in hospitalization coverage would make it peculiarly appropriate for the hospitalization organizations to evolve some system for the immediate consideration of the medical profession and furthermore because these organizations are already closely identified with the profession and, through physicians within their membership, familiar with its side of the problem. It is agreeable to realize that here again Virginia is not backward. Two months ago the far-sighted directorate of the Richmond Hospital Service Association, agent for six of the seven hospital groups in that city, appointed a committee to study all aspects of this question, submit a plan of universal coverage, and suggest a method of approach to the medical profession. The Chairman of this committee is a former president of the Richmond Academy of Medicine, and the other two members are business men of conspicuous prominence and ability. Under such auspices all aspects of this problem would seem assured of sympathetic understanding and consideration. We await with absorbing interest—and great hopefulness—the report of this committee, and of others like it that may be set up elsewhere. Will the doctors be prepared to give it the attention it will so rightly deserve—for the benefit of humanity and for the benefit of the profession as well? We may well ponder this question while the work of investigation goes on.

J.F.G.

California Goes Socialized Medicine.

While we in Virginia are debating whether we will even consider sickness insurance, the California Medical Association by an overwhelming vote last month approved a plan of socialized medicine set up under a subsidiary corporation and offered to the citizens of that state at a cost of $2.50 a month. The plan is guaranteed not to interfere with private practice and is pledged to the highest type of medical service. Charles Dukes, president-elect of the California Medical Association, is accredited with expressing the belief that "this is a distinct step forward in giving the people of California a chance to pay for health service at a nominal cost."

A National Health Program Laid Before Congress.

For several years through these columns we have repeatedly sounded the warning that the Federal Government intended to take a hand in medical matters and was formulating a national health program for the American people. Mr. Roosevelt's report to Congress a few days ago recommending an $850,000,000 Federal-State program was therefore not news. He passes on the report of his interdepartmental committee, a report which formed the agenda of the National Health Conference last summer and was the cause of the extraordinary session of the American Medical Association held in Chicago in the autumn of 1938. The whole program is now finally before the country and we may expect shortly from Senator Wagner a bill instrumenting it by a modest initial appropriation of $50,000,000. For the most part we favor Mr. Roosevelt's program. We are chagrined, however, that the impetus has come from lay reformers and not through established medical channels. It is not too late for a constructive and cooperative liaison between organized medicine and the government.

Proceedings of Societies

Virginia State Board of Medical Examiners.

There were no failures among those appearing before the Board at its December examinations. The following are those who were granted certificates:

Dr. John Evan Alexander, Roanoke.
Dr. Klaus W. Berblinger, Norfolk.
Dr. Paul Webster Bowden, Arlington.
Dr. William Arkell Browne, Richmond.
Dr. William David Chase, McLean.
Dr. James John Clark, Pleasant City, Ohio.
Dr. George Barksdale Craddock, Philadelphia, Pa.
Dr. Paul Vincent Davis, Hopemont, W. Va.
Dr. Henry Thomas Davis, Washington, D. C.
Dr. John Huit Dellinger, Pennington Gap.
Dr. Connelly Moore Dobson, Richmond.
Dr. James Bauer Funkhouser, Marion.
Dr. George H. H. Garrison, Norfolk.
Dr. James Noah Greear,* St. Paul.
Dr. Willard W. Griggs, Norton.
Dr. Henry Gilbert Hadley, Washington, D. C.
Dr. Pater Andrew Herbut, Richmond.
Dr. Wallace Shinobu Kawaoka, Lynchburg.
Dr. Walter F. J. Karbach, Dahlgren.
Dr. Paul Kimmelstiel, Richmond.
Dr. Ralph M. Lexhausse, Pardee.
Dr. Edward James Lefeber, Richmond.
Dr. Aubrey Constantine Lindo, Detroit, Mich.
Dr. Sydney Newby Lord, Virginia Beach.
Dr. Colin MacRae, Alexandria.
Dr. George Savage Mahon, London, Ky.
Dr. Vance Hunter Marchbanks, Washington, D. C.
Dr. Edward A. Mitchell, Dante.
Dr. Weldon A. Price, Washington, D. C.
Dr. Roger Rhodes Spencer, Lynchburg.
Dr. Harry Steinberg, Bastian.
Dr. William Robinson Strader, Keystone, W. Va.
Dr. James M. Suter, Jonesville.
Dr. Joseph D. Weaver, Washington, D. C.
Dr. Aubrey Samuel Willacy, Washington, D. C.
Dr. Roger Stanley Williams, Petersburg.
Dr. Samuel Harrison Williams, Alexandria.
Dr. Russell Bigelow Williams, Rochester, N. Y.
Dr. Roderick Alan Macdonald (osteopathy), Richmond.
Dr. David Steele Jackson (chiropody), Richmond.

*Issued Verification Certificate. Evidence produced of practice prior to 1885.

The Northampton County Medical Society

Held its regular quarterly meeting at Eastville, January 11, at which time the following officers were elected for 1939: President, Dr. W. J. Sturgis, Nassawadox; vice-president, Dr. Joseph E. Gladstone, Exmore; and secretary, Dr. W. C. Henderson (re-elected), Nassawadox.

The Board of Censors is composed of Dr. S. K. Ames, Cape Charles; Dr. G. W. Holland, Eastville; and Dr. H. L. Denoon, Nassawadox.

The Committee on Maternal Welfare consisting of Drs. H. L. Denoon, J. W. Jackson and J. G. Goode was re-elected. They gave a report of the work of the local Maternal Welfare Clinic, reporting 242 deliveries with three deaths in two years.

The Committee on Syphilis, consisting of Drs. S. K. Ames, W. J. Sturgis, and J. R. Hamilton was also re-elected. They reported progress toward the establishment of Syphilitic Clinics in the County.

The director of the Northampton County Health Unit, Dr. W. Y. Garrett, reported on an extensive immunization program in the County against diphtheria, Dr. Garrett doing the Schick test and toxoid being given by the doctors in the respective communities.

The Northampton and Accomac County doctors have adopted the Farm Security Administration plan.

W. C. HENDERSON, *Secretary.*

Patrick-Henry Medical Society.

The quarterly meeting of this Society was held in Martinsville on January 13, at which time Dr. E. E. Barksdale of Danville presented a paper on "A Discussion of Some of the More Prevalent Skin Diseases of Importance to the General Practitioner".

The following are the officers of this Society for 1939: President, Dr. John A. Shackelford, Martinsville; vice-president, Dr. D. H. Mason, Ridgeway; and secretary-treasurer, Dr. R. H. Walker, Martinsville.

Roanoke Academy of Medicine.

At the regular meeting of the Academy on January 9, the following program was presented: Obstetrical Analgesia, Amnesia, and Anaesthesia by Dr. C. W. Dorsey; The Use of the Roentgen Ray in Diagnosis and Treatment of Mediastinal Diseases by Dr. C. H. Peterson; and The Modification of Fresh Cow's Milk with the Use of Honey as a Carbohydrate by Dr. R. H. DuBose.

Dr. W. W. S. Butler is president of the Academy and Dr. A. C. Davis, secretary-treasurer.

New Secretary of Botetourt Society.

Dr. L. A. Micou of Eagle Rock has been named secretary of the Botetourt County Medical Society, succeeding Dr. Wade H. Saunders, resigned.

Lynchburg Academy of Medicine.

The regular meeting of the Academy was held in the Elks' Club January 9th, with the new President, Dr. Sam Oglesby presiding. Due to the illness of the out-going President, Dr. Elisha Barksdale there was no installation of officers.

Dr. Dunbar Hoskins was elected to membership.

The Academy responded with whole-hearted enthusiasm to two local members on the program. An interesting case of type three pneumonia successfully treated with specific serum was presented by Dr. J. Paul Kent, who opened up the whole field of pneumonia for discussion with special emphasis on specific serum and sulfanilamide in its treatment.

Dr. Powell Dillard, in his charming way, presented a very interesting paper on "Cigarette Smoking".

Resolutions were adopted in regard to the death of Dr. W. C. Rosser and Dr. H. B. Spencer.

C. E. KEEFER,
Secretary-Treasurer.

News Notes

Richmond Plans for State Meeting.

The Richmond Academy of Medicine recently named Dr. Roshier W. Miller as general chairman in charge of arrangements for the seventieth annual meeting of the Medical Society of Virginia. The committee has met and selected the John Marshall Hotel as headquarters and plans to have all meetings there. Members of the Academy who will serve with Dr. Miller are:

Vice-chairman—Dr. W. L. Peple.
Entertainment—Dr. Lewis E. Jarrett.
Hotels—Dr. Wm. H. Higgins.
Finance—Dr. E. T. Trice.
Publicity—Dr. Lawrence T. Price.
Exhibits—Dr. H. B. Haag.
Meeting Halls—Dr. T. Dewey Davis.
Golf—Dr. E. T. Terrell.
Ladies—Mrs. James K. Hall.

With this committee at work, the meeting in Richmond next Fall gives every promise of being a most excellent one and we hope for a large attendance.

The Tri-State Medical Association of the Carolinas and Virginia

Will hold its forty-first annual meeting in Charleston, S. C., February 20 and 21, under the presidency of Dr. J. F. Highsmith of Fayetteville, N. C. Headquarters for the meeting will be at Fort Sumter Hotel. The secretary, Dr. J. M. Northington of Charlotte, N. C., announces that a most interesting program has been arranged. This will include an address and a clinic in surgery by Dr. J. deJ. Pemberton of Mayo Clinic; a clinic in general medicine and one in neurology by members of the faculty of the Medical College of South Carolina; and some twenty-five papers covering a great diversity of features of the general practice of medicine and surgery. Pneumonia will be discussed from every angle—typing, home treatment, serum treatment, and treatment with special drugs. A method of typing pneumococci will be presented which is so different from methods in general use as to have been described as revolutionary. Recent advances regarding pellagra will also have a prominent place.

Dr. Francis B. Johnson of Charleston is chairman of the committee of arrangements and he or the secretary will be glad to furnish any further information desired.

For Better Acquaintance.

There is an old saying, "Make new friends but keep the old", and this is what we hope our readers may bear in mind with regard to our advertisers. We are grateful to the advertisers who have been loyal to us through the years, most of whom are continuing with us for 1939. We are also glad to welcome several new comers—some using all twelve issues during the year, others in for certain months. We appreciate their business and hope our readers will welcome them by showing interest in their advertising and patronizing them when possible. Of course this advertising represents business, but all products, hospitals, etc., listed in our pages are controlled by people as human as ourselves and we all

like a word of approbation. Advertisers will be glad to tell you of their "wares"; manufacturers will gladly send samples upon request of any doctor.

Make it a point this year, as far as possible, to boost those who are helping your State journal.

The Southeastern Surgical Congress

Will hold its tenth anniversary Post-graduate Surgical Assembly at the Biltmore Hotel, Atlanta, Ga., March 6, 7 and 8. This will include clinics and lectures covering every branch of medicine, by well known speakers, two of whom are Virginians—Dr. Hugh H. Trout and Dr. W. R. Whitman, both of Roanoke. Any one interested in attending should notify Dr. B. T. Beasley, secretary-treasurer, 701 Hurt Building, Atlanta, Ga.

Dr. McGinnes Resigns Post with State Health Department.

Dr. G. F. McGinnes, for the past seven years director of the Bureau of Communicable Diseases of the State Health Department, has submitted his resignation, effective February 28, that he may accept the position as director of the venereal disease project sponsored by Memphis and Shelby County, Tenn., with the cooperation of the State of Tennessee, the U. S. Public Health Service and the University of Tennessee. Headquarters will be at Memphis. He will also be associate professor of preventive medicine at the University of Tennessee.

The successor to Dr. McGinnes will not be appointed for several months. In the meantime Dr. William Grossman, State epidemiologist who has been associated with Dr. McGinnes, will take over the work of the Bureau of Communicable Diseases with the assistance of other physicians in the Health Department.

Radiologic Review Changes Name.

For the past three years the *Radiologic Review and Mississippi Valley Medical Journal* has served as the official publication of the Mississippi Valley Medical Society and has devoted most of its pages to this purpose. With the continued growth of that Society, it has seemed fitting that the name of its official publication more clearly indicate its principal function, so that, with the January, 1939 issue, it assumed the name of the *Mississippi Valley Medical Journal* (incorporating *Radiologic Review*). It will continue to be published bi-monthly from Quincy, Ill., with the same editorial board, and will be devoted to clinical medicine, surgery and radiology, as they interest the physician and surgeon.

On Staff of Gill Memorial Hospital.

Dr. John E. Alexander, formerly house surgeon, Department of Otolaryngology and Ophthalmology, Brooklyn Eye and Ear Infirmary, is now a member of the staff of the Gill Memorial Eye, Ear and Throat Hospital.

American Association for the Advancement of Science.

At the meeting of this Association, held in Richmond, December 26-30, Dr. Walter B. Cannon, George Higginson professor of physiology at Harvard University, was elected President.

Dr. Hugh L. C. Wilkerson,

Of the U. S. Public Health Service, recently at Hot Springs, Arkansas, is now with the State Board of Health in Columbia, S. C. He is a graduate of the Medical College of Virginia, class of '33.

The George Washington University Medical School,

Washington, D. C., announces its 7th Annual Postgraduate Clinic to be held on February 18. Important developments in all branches of medicine will be covered and papers will be presented by prominent doctors.

On February 17, the day before the Clinic, the A. F. A. King Obstetrical Society will present a Symposium on Obstetrics and Gynecology.

The annual banquet and alumni reunion of the School will be held on the 18, at the Mayflower Hotel, with Dr. Roy R. Kracke, Professor of Bacteriology and Pathology at Emory University, as the guest speaker.

A cordial invitation is extended to doctors in neighboring states as well as those in Washington to attend.

Dr. Hedges Leaves Health Unit.

Dr. Charles C. Hedges, for two years health officer of the Isle of Wight-Nansemond-Suffolk Health District, resigned this position effective November 30 to accept the position of Senior Medical Officer with the Medical Division of the Federal Trade Commission in Washington. The Medical Division of this Commission was recently created and is concerned with any medical preparation, remedy, etc., which is advertised through the press or over the radio and sold to the public in Interstate Commerce.

Change in Health District.

Dr. Thomas Scarlett has been appointed to succeed Dr. Charles C. Hedges, resigned, as Health

Officer of the Isle of Wight-Nansemond-Suffolk Health District, and entered upon duty on January 9.

Dr. Warfield T. Longcope,

Professor of medicine at Johns Hopkins University and physician-in-chief in John Hopkins Hospital, Baltimore, was the guest speaker before the Norfolk County Medical Society at its meeting on January 16. His subject was Pyelo-Nephritis.

News from Medical College of Virginia.

In remodeling the Egyptian Building, which is not now fireproof and which has failed badly, the interior and roof will be removed to give place for a new treatment of the interior which will be fireproof. The exterior will also be restored to original condition.

When the building is completed the first and basement floors will be utilized chiefly for a handsome auditorium done in the Egyptian manner which will seat four hundred. There will be a small stage with curtain, provision for sound projection, arrangements for presentation of cases for discussion, and many other attractive features.

The upper floors of the building with a section of the basement will be utilized by the departments of pathology and bacteriology, bringing the pathology department next to the new morgue and autopsy facilities.

The fourth floor of McGuire Hall, now under construction, will be utilized for the departments of physiology and pharmacology and will be very modern.

The amphitheatre adjoining McGuire Hall will be remodeled to be used as laboratories and related facilities for the department of anatomy.

It is anticipated that the Egyptian Building, the fourth floor of McGuire Hall, and the new morgue and autopsy quarters will be ready by the opening of the session 1939-40.

The following were recently added to the faculty of the college: Dr. Emmett C. Matthews, Assistant in Medicine; Dr. Wellford Reed, Instructor in Medicine; Dr. Louis Kolipinski, Instructor in Neuropsychiatry; Dr. R. C. Allison, Instructor in Neuropsychiatry; Dr. Thomas E. Painter, Instructor in Neuropsychiatry; Dr. Isadore Zfass, Instructor in Neuropsychiatry; Dr. William Johns, Instructor in Surgery, and Dr. Herman Farber, Instructor in Pediatrics.

Doctors in Music.

Do you or any of your medical friends play any musical instrument? Mead Johnson & Company is now preparing a new publication devoted to the hobbies and achievements of physicians, past and present, in the field of music. Doctors' orchestras, doctors' glee clubs, historical or biographical items, with or without illustrations, will be welcomed. Please send your item to Mead Johnson & Company, Evansville, Ind.

If you have not received your free copy of their recent publication "Parergon", devoted to fine art by doctors, send for it now.

Dr. Otho Perry Campbell,

Class of '37, Medical College of Virginia, later interning at Johnston-Willis Hospital, Richmond, has located at Madison, where he has taken over the offices and practice of the late Dr. J. N. Clore.

Dr. Carrington Williams,

Richmond, announces the removal of his office to 816 West Franklin Street, this city. He is continuing his surgical practice at St. Luke's Hospital.

Appointment at Cook County Graduate School of Medicine.

Dr. John R. Neal of Springfield, Illinois, has been appointed Dean of the Cook County Graduate School of Medicine in Chicago. This was announced by the Board of Trustees following their annual meeting in December.

Directors with Banks.

Dr. W. W. Wilkinson of La Crosse has been reelected a director and president of the La Crosse Bank; and

Dr. H. A. Spitler of Middleburg has been reelected a director of the Middleburg National Bank.

Motion Picture Films Available.

The American Medical Association has a number of motion picture films for loan, among which are several on physical therapy. The borrower is expected to pay the expense both ways and to be careful when running them.

Pictures available for medical societies and other scientific organizations are:

Syphilis—A Motion Picture Clinic.
Cancer—(Canti Cancer Film).
Blood Circulation (Harvey Blood Film).
Blood Transfusion.
Comparative Physiology of Labor.

Effects of Heat and Cold on the Circulation of the Blood.
Effects of Massage on Circulation of Blood.
Contraction of Arteries and Arterio-Venous Anastomoses.
Therapeutic Exercises for the Shoulder Joint Following Dislocation.
Treatment of Compression Fracture of the First Lumbar Vertebrae.
Aids in Muscle Training.
Underwater Therapy.
Occupational Therapy.
Massage.

Pictures for the public are:

A New Day—Prevention and Treatment of Pneumonia.
Prevention of Burns.
Men of Medicine.

These films may be procured by writing Dr. Thomas G. Hull, Director, Scientific Exhibit, American Medical Association, 535 N. Dearborn St., Chicago, Ill. An advance request will insure the film being reserved for the desired date.

The Southern Safety Conference

Is to meet in Jackson, Mississippi, on February 16-17. Dr. J. R. Garner, Chief Surgeon of the Atlanta and West Point Railroad Company, Atlanta, Ga., and Dr. Donald M. Shafer of the National Association of Manufacturers will be the speakers.

Every physician in the South who is doing any industrial work should attend these sessions and is invited to be present.

Dr. J. H. Hoskins,

Recently of Lynchburg, is now located in Culpeper.

Dr. Linwood D. Keyser,

Roanoke, has been appointed Chairman of the Committee on Scientific Exhibits for the 36th Annual Meeting of the American Urological Association. This meeting will take place at the Greenbrier Hotel, White Sulphur Springs, West Virginia, May 29 to June 1, 1939.

Dr. Bothwell Graham,

Class of '37, University of Virginia, Department of Medicine, has recently been appointed and commissioned as Assistant Surgeon in the Reserve Corps of the U. S. Public Health Service and is on active duty at the U. S. Marine Hospital, Staten Island, N. Y.

Petersburg Hospital Staff.

At the annual meeting of the Petersburg Hospital Staff, held January 3, the following officers were elected: Dr. Allen Barker, president, succeeding Dr. D. D. Willcox; Dr. C. W. Lynn and Dr. Munford Yates vice-presidents; Dr. H. Cantor, secretary (re-elected); Dr. W. B. McIlwaine, member of the medical committee (re-elected), subject to approval of the board of directors; Dr. J. E. Hamner, new member to chart committee; Dr. George Reese, chairman (re-elected); Dr. H. Cantor (re-elected) secretary, surgical section; Dr. E. W. Young, chairman of eye, ear, nose, and throat section; Dr. J. D. Osborne, chairman of the X-ray section.

Art Tells History of American Medicine.

"Beaumont and St. Martin"

"Beaumont and St. Martin" is the first of six large paintings in oil memorializing "Pioneers of American Medicine" which artist Dean Cornwell will complete in the next few years. Others in the series are: Dr. Oliver Wendell Holmes, Dr. Ephraim McDowell, Dr. Crawford W. Long, Dr. William T. G. Morton, and Major Walter Reed, and one woman, Dorothea Lynde Dix who, while not a physician, stimulated physicians to study insanity and feeblemindedness.

Arrangements to supply physicians with free, full color reproductions of "Beaumont and St. Martin" without advertising, and suitable for framing, have been made with the owners, John Wyeth & Brother, 1118 Washington Street, Philadelphia, Pa.

Married.

Dr. Arthur Sumner Brinkley of Richmond and Miss Constance Elizabeth Brown of Greenwich, Conn., January 3.

Dr. Meyer Vitsky and Miss Sara Straus, both of Richmond, December 27.

Dr. Herman Frank Oppleman and Miss Gwendolyn Ann Lewis, both of Richmond, January 7.

Dr. Wade H. Saunders,

Located for several years at Fincastle, has moved to Roanoke and has offices at 301 Medical Arts Building, that city.

Associated with Drs. Hedges, Woodward and Fitz-Hugh.

Dr. F. Jason Crigler, who has recently completed a two year appointment at the Manhattan Eye, Ear and Throat Hospital in New York City, will be associated with Drs. Hedges, Woodward and Fitz-Hugh at 104 E. Market St., Charlottesville. His work will be limited to the practice of Ophthalmology.

The National Society for the Prevention of Blindness

Announces that Lewis H. Carris, managing director, assumed the title of general director on January 1, with Mrs. Winifred Hathaway as associate director.

Mrs. Eleanor Brown Merrill, an associate director for the past five years and formerly secretary of the Society, becomes executive director, and will relieve Mr. Carris of administrative details.

Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

For Sale—

Set of Lewis' Practice of Surgery for which owner has no need. Has had practically no use and is in excellent condition. Price $60.00. Original cost $125.00. Write P. O. Box 93, Hillsville, Virginia. (*Adv.*)

Wanted—

Young doctor to assist in hospital work and general practice in industrial center, having a lumber and coal company. The position pays $250.00 a month with $25.00 extra per month if the doctor owns and drives car; room and board furnished. Unmarried Gentile preferred. Apply to "Industrial Practice", c/o this JOURNAL. (*Adv.*)

For Sale—

Several used Short-Wave Units, Cold Quartz Ultra-Violet and Mercury-Arc Lamps, Elliott Machines. Only one Tube-Gap Electro Surgical Unit for Urologists and Hospital Use. Equipment guaranteed and priced right. Invite trial of our new Short Wave and Ultra-Violet Equipment. X-ray. Repairs on all equipment, regardless of make. H. A. Page, Factory Representative, E. J. Rose Manufacturing Company, 3312 Cliff Avenue, Phone 3-6335, Richmond, Virginia. (*Adv.*)

Obituary Record

Dr. Beverly Randolph Kennon,

Dean of Norfolk physicians, died December 27, following a heart attack. He was a native of Powhatan County and sixty-seven years of age. Dr. Kennon graduated in medicine from the University of Virginia in 1893. He had been a member of the Medical Society of Virginia for thirty-eight years. His wife and two children survive him, his son being Dr. Beverly Randolph Kennon, Jr., now located in New York City.

The Norfolk County Medical Society recently adopted the following tribute and resolutions:

The Norfolk County Medical Society records with profound regret and sorrow, the untimely death, on December 27, 1938, of one of its faithful members and past presidents, Dr. Beverly Randolph Kennon.

As a member of the Society he brought to its deliberations, a mind well trained in his specialty and fearless in the expression of opinions based on keen observation, study and logical deduction.

Always considerate of the feelings and opinions of others, he gave proper consideration to statements and differing conclusions, which is the essence of deliberative propensity in the effort to progress.

Combining as he did great personal charm with a logical mind, his constant attendance at the Society meetings was always greeted with enthusiasm and pleasure by his fellow members.

The catholicity of his interests in all branches of medicine made him an attentive listener to discussions and debates in subjects, other than his own specialty.

Both as a member and as an officer of the society, he took its best interests to heart and gave to it generously of his time and thought. Such a personality bears its impasse on any deliberative body, enriching its records and elevating its tone to the permanent betterment of the body as a whole.

Dr. Kennon was born in Powhatan County, Va., at "Norwood" on October 15, 1871, son of Wm. Upshur Kennon and Bessie Gilliam Kennon. His bachelor of science degree came from the Virginia Polytechnic Institute and his medical degree from the University of Virginia. Post-graduate internship of three years at the New York Eye and Ear Infirmary was augmented further by work in Vienna and London.

Entering practice in Norfolk in 1899 he administered to a large clientele to within a few days of his death. He died as he wished—"on duty".

As a volunteer in the Medical Service during the World War, he served with distinction as Major in the Army Medical Corps.

His medical affiliations included, The American Medical Association, The Norfolk County Medical Society, The Medical Society of Virginia, The Seaboard Medical Society, Fellow of the American College of Surgeons, American Ophthalmological Society, American Otological Society, The American Laryngological-Rhinological and Otological Society.

He was consulting surgeon on the staff of the Norfolk General Hospital and member of the staff of Leigh Memorial Hospital. He was a member of the Phi Kappa Sigma and Omega Alpha fraternities, was past president of the Virginia Order of Cincinnati.

RESOLVED: That a copy of these resolutions be incorporated in the annals of the Norfolk County Medical Association and a copy be sent to the family of the deceased.

LOMAX GWATHMEY,
H. L. MYERS,
WM. LETT HARRIS,
Committee.

Dr. James Blaine Muncy,

Prominent Lee County physician, died suddenly at his home in Pennington Gap on January 20. He was forty-five years of age and a graduate of the Medical College of Virginia, class of 1918. Dr. Muncy had practiced in Lee County for twenty years. He was secretary-treasurer of the Lee County Medical Society, which office he had held for a number of years, and had been a member of the Medical Society of Virginia since 1920. Dr. Muncy was a World War veteran. His wife survives him.

Dr. Alexander Augustus Sizer,

Well known and beloved physician of Nelson County, died January 10, following a short illness though he had not been in good health for several years. He was a native of King William County where he was born in 1870. Dr. Sizer graduated from the former University College of Medicine, Richmond, in 1899, and had been located in Schuyler for more than thirty years, where he was physician for the Virginia Soapstone Corporation. He had been a member of the Medical Society of Virginia for about forty years. His wife and a son survive him.

A friend, in paying tribute to Dr. Sizer, wrote: "Dr. Sizer was held in high esteem by his associates as a fine general practitioner and as a most eminent diagnostician. He wrought not for fame, but for the alleviation of the sufferings of humanity. . . . He was modest in the estimate of his own attainments, like all truly great souls are."

Dr. Eugene Y. Willis,

Prominent physician of Culpeper, died January 5 following a paralytic stroke. He was sixty years of age and a graduate of the Medical College of Virginia in 1903. Dr. Willis practiced for sometime in West Virginia before locating at Culpeper. He was prominent in civic and religious affairs and was an active member of the Masonic order. He had been a member of the Medical Society of Virginia for a number of years. His wife and four children, one of them being Dr. James Willis of Richmond, survive him.

Dr. Lyle F. Hansbrough,

Prominent physician of Front Royal, died January 22nd, after an illness of three months. He was born in 1879 in Fauquier County and received his medical degree from the University of Virginia in 1901. Dr. Hansbrough took an active part in civic affairs, having served as a member of the Front Royal Town Council, and was a charter member of the local Rotary Club and a Mason. He was physician to the Randolph Macon Academy and the Army's Front Royal Remount Depot. He had been a member of the Medical Society of Virginia for thirty-three years. His wife and a son, Dr. Lyle J. Hansbrough, of the University of Virginia, survive him.

Dr. Margaret Packer Forcee Kuyk,

Well known Richmond physician, died January 16 after an illness of more than a year. She was a native of Pennsylvania and seventy-eight years of age. Dr. Kuyk graduated from the Woman's Medical College of Philadelphia in 1891, following which she came to Richmond to practice. Her husband, the former Dr. Dirk Adrian Kuyk, was a prominent Richmond physician. She was professor emerita of physiology and hygiene at Westhampton College and a member of the University of Richmond chapter of

Phi Beta Kappa. Dr. Kuyk was a member of the Medical Society of Virginia, as well as other medical and fraternal organizations. A brother is her only near surviving kinsman.

Resolutions on Death of Dr. Clore.

Resolutions adopted by the Council of the Town of Madison at its regular meeting on December 12, 1938, upon the death of the late Dr. J. N. Clore:

WHEREAS Dr. J. N. Clore has served as a member of Council of the Town of Madison since its incorporation as a Town during the year 1931; and,

WHEREAS during said time he gave untiringly of his time and energy for the advancement of the best interests of the Town:

NOW THEREFORE BE IT RESOLVED:

First: That in the passing of this official, the Town of Madison has lost one who was deeply interested in its progress and growth, and in the development of worthwhile enterprises within its borders, the Town and county has lost one of its best beloved physicians, and the Council has lost one whose counsel and advice were eagerly sought by his fellow members, and one who cooperated to the fullest extent in solving the many problems that came before the Council.

Second: That we extend to the family of the deceased our deepest sympathy, and the assurance that we grieve with them.

Third: That a copy of these resolutions be sent to the family of the deceased, a copy be forwarded to the *Madison County Eagle* with the request that the same be published, and that a copy be spread upon the minutes of the Council.

E. N. LILLARD,
Mayor, Town of Madison.

Attest:
ROYCE PAYNE, *Secretary.*

Resolution on Death of Dr. Blakiston.

The following resolution was passed by the Arlington County Medical Society, at a meeting in December:

WHEREAS, the Great Physician has seen fit to remove from our midst our beloved fellow physician, Dr. W. S. Blakiston;

BE IT RESOLVED: That we, members of the Arlington County Medical Society bow in humble submission to His Divine Will and extend to the family of Dr. Blakiston our sincere sympathy in this bereavement.

H. L. BASTIEN
V. E. LANE
W. C. WELBURN
Committee.

Resolutions on Dr. Spencer.

The Lynchburg Academy of Medicine, of which Dr. Hunter B. Spencer has long been a loved and honored member, desires to place on record, this evidence of their affectionate regard for Dr. Spencer as a man, and as a tribute of respect for his attainments in the field of roentgenology.

WHEREAS Dr. Hunter B. Spencer, had been a beloved co-laborer in the science of healing in Lynchburg for nearly twenty years, and whereas association both professional and sccial have been close and harmonious, we, members of the Academy of Medicine recognize the high order of his service and his fineness of character.

BE IT HEREWITH RESOLVED: That in the death of Dr. Spencer, the medical profession of Lynchburg has suffered a serious loss, that of a pioneer in roentgenology in this part of the State, a branch of his profession in which he attained much distinction.

Dr. Spencer, in the years that he practiced his profession in Lynchburg was recognized as a valuable physician, gentle, kind, and above all things tolerant. He had an abiding trust in his Christian faith, which never faltered during a long and painful illness. To know him was to love him.

D. P. SCOTT
R. D. CALDWELL
J. W. DEVINE.

Resolutions on Dr. Rosser.

At its regular January meeting of the Lynchburg Academy of Medicine the following resolution was unanimously adopted:

BE IT RESOLVED that in the death of Dr. W. C. Rosser on November 24, 1938, the Lynchburg Academy of Medicine has lost not only a valued member but a physician who was entirely unselfish and in no way spared himself in his efforts to relieve his suffering patients.

He was always ready to respond to the call of help and in the latter years of his life to his great physical discomfort, he tended the sick when he should have been ministered to himself.

In the care of the sick when he was really unable to do so, he probably shortened his life many years.

The Lynchburg Academy of Medicine extends sympathy to his family and friends in their sorrow.

JOHN WYATT DAVIS, *Chairman*
JOHN HUNDLEY
ERNEST SCOTT

Dr. Harmon L. Pippin,

Bristol, resident physician of the Splash Dam Coal Corporation of Buchanan County, was killed instantly when struck by a railway engine on January 8. He was sixty years of age and a graduate of the former University College of Medicine, Richmond, in 1902. His wife and three sons survive him.

Dr. Randolph Moore Gilliam,

Recently of Chicago, Ill., died January 14, at the University of Virginia Hospital. He was a native of Virginia and forty-three years of age. Dr. Gilliam received his medical degree from the University of Virginia in 1919.

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CONTENTS

Early Diagnosis in Pneumonia. Walter P. Adams, M. D., Norfolk, Va. 129
Diagnosis and Treatment of Lobar Pneumonia. Douglas G. Chapman, M. D., Richmond, Va. 132
Type III Pneumococcic Pneumonia With Report of a Case Successfully Treated With Specific Serum. J. Paul Kent, M. D., Altavista, Va. 136
Prevention of the Common Cold. John R. Hamilton, M. D., Nassawadox Va. 139
Bang's Disease. I. D. Wilson, D. V. M., Ph. D., Blacksburg, Va. 142
Roentgen Ray Examination of the Colon. William P. Gilmer, M. D., Clifton Forge, Va. 143
Otogenic Acute Suppurative Arthritis. Francis Henry McGovern, M. D., Danville, Va. 146
Acute Arsenic Poisoning. W. A. Porter, M. D., Hillsville, Va. 148
Snares and Pitfalls in Medicine as Shown in the Review of Three Cases: Brilliant Results and Cures in Modern Medicine as in Two Cases. Wilson E. Driver, M. D., Norfolk, Va. 151
Care and Feeding of the Newborn and the Premature from the Pediatric Viewpoint. James B. Stone, M. D., Richmond, Va. 158
Myxedema. K. D. Graves, M. D. Roanoke, Va. 162
The Value of the Periodical Health Examination. Reuben F. Simms, M. D., Richmond, Va. 164
The Responsibility of the General Practitioner in the Prevention of Mortality in Acute Abdominal Conditions. H. W. Smeltzer, M. D., Abingdon, Va. 169
The Significance and Management of Ankle Edema. Wellford C. Reed, M. D., Richmond, Va. 171
Fish-Bone Perforating the Caecum Simulating Acute Appendicitis. Wesley Fry, M. D., Washington, D. C. 173
PUBLIC HEALTH STATISTICS 174
WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 176
TRUTH ABOUT MEDICINE 177
BOOK ANNOUNCEMENTS 179
EDITORIAL 180
DEPARTMENT OF CLINICAL AND MEDICAL EDUCATION OF THE MEDICAL SOCIETY OF VIRGINIA 181
PROCEEDINGS OF SOCIETIES 183
NEWS NOTES 184
OBITUARY RECORD 189

INDEX TO ADVERTISERS—Advertising Page 6

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EARLY DIAGNOSIS IN PNEUMONIA.*

WALTER P. ADAMS, M.D.,
Norfolk, Virginia.

Pneumonia has a higher mortality rate than any other one of the infectious diseases, and this has been increasing year by year. Its mortality rate is exceeded only by two other conditions, heart diseases and accidents. Surgeon General Parran considers his plan for pneumonia control next in importance to his campaign against syphilis. This widespread interest among public health officials has materially aided state-wide programs for the control of pneumonia through education of the laity and cooperation with the practicing physicians. Since specific anti-serum treatment of pneumonia has been receiving widespread recognition, public health authorities have come to realize that specific type diagnosis and treatment of pneumonia is a valuable weapon with which to combat this increasing number of deaths. The change in the method of handling of some pneumonias from merely symptomatic care and expectant treatment, to the use of specific sera in proper amounts, is necessarily related to early clinical diagnosis of the disease, and the early identification of a specific pneumococcus in as many cases as possible.

Pneumonia has long been a general term including a wide variety of acute pulmonary infections, and the descriptive adjectives modifying it have been many and varied, including such as senile, abortive, and contusion pneumonia. Because specific serum therapy has forced the necessity of diagnosing pneumonia on an etiologic basis, it is no longer sufficient to regard cases as simply lobar pneumonia or bronchopneumonia. These anatomical terms must be qualified by naming the specific etiologic agent whenever and as soon as possible.

A simple solution of the confusion in classification of pneumonias was made by Cole in 1928, in designating as typical all those pneumonias conforming clinically with lobar or pneumococcic pneumonia. All others were then grouped as atypical, with modification according to the etiologic agent, such as atypical streptococcic pneumonia, meaning diffuse or bronchopneumonia of streptococcic origin. This emphasizes the relative unimportance of purely anatomic diagnosis when one first sees and hears the signs of pneumonia. Too much effort should not be wasted in differentiating between lobar pneumonia and bronchopneumonia. It is of no immediate importance whether the disease will assume the clinical lobar form or not, except that the prognosis is better if the lesion is localized. It is, however, of great immediate importance to know whether the pneumonia is caused, for example, by any certain type of pneumococcus or hemolytic streptococcus, for in both these instances totally different specific therapy is necessary, regardless of the anatomical or clinical form the pulmonary infection assumes.

But early clinical diagnosis remains the first important phase in the care of pneumonia, after which laboratory studies and therapy can be instituted. Early clinical diagnosis is also important apart from the etiological diagnosis, in that pneumonia is a contagious and infectious disease in which no time should be lost in applying measures to prevent the spread of infection. Early diagnosis implies alert interpretation of history, physical signs, and laboratory findings. The most valuable early diagnostic sign of pneumonia is the suspicion that it might be present. History of an individual having a chill, rise in temperature, pain in chest, or cough with rusty sputum usually causes even a layman to suspect pneumonia.

About 70 per cent of so-called primary pneumonias are actually secondary to a common cold. Any upper respiratory infection with its fever, prostration,

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Greenville, N. C., December 6-8, 1938.

cough, and pleuritic pain suggests pneumonia if instead of prompt recovery there is a more severe cough, increasing sputum, or respiratory rate change. Frequently in these cases it is difficult to say whether the pneumonia is a complication of the cold, or the cold is a gradual onset of pneumonia. Early recognition of changes in persisting colds will often reveal pneumonia and the necessity of sputum studies.

The great majority of all pneumonias allow diagnosis before the usual physical signs of consolidation appear. There are always one or more characteristic physical findings present in the earlier stage of engorgement. In this stage of pneumonia the appearance of the patient bears much diagnostic weight. The flushed face, herpes about the lips, the inspiratory dilatation of the nasal alae, and the increased respiratory rate with characteristic expiratory grunt, all contribute to the characteristic appearance of the illness.

A summary of the most important changes which are frequently in evidence in the earlier stage of pneumonia include:—

1. Characteristic respiration, it being rapid, restrained, and shallow. Inspiration is checked short, while the sudden release of expiration causes a shallow expiratory grunt. The pulse-respiration ratio is disturbed to two to one or even one and one-half to one. The value of this latter sign is too often underestimated.

2. Cyanosis appearing at the lips, ear lobes, and finger tips and coincident with rapid breathing.

3. Sudden unilateral chest pain, frequently with limitation of respiratory movement on the side involved. Important is the tendency to lie on the involved side, and the absolute lack of orthopnea.

4. Diminished or suppressed breath sounds over certain areas, and the presence of fine crepitant rales at the end of inspiration. These rales are due to the sticky alveolar walls being pulled apart at the end of inspiration. In early stages a striking diagnostic feature is the rapid change in the ausculatory findings, noticeable even in a few hours.

5. Dry paroxysmal cough at first, and later with rusty sputum, showing blood cells, leucocytes and one of the usual causative organisms.

6. Sudden chill with abrupt temperature rise. The lack of chill should not remove the suspicion of pneumonia, whereas more than one chill is suggestive of some other form of infection in the lung or elsewhere. It should also be borne in mind that pneumonia in elderly and debilitated persons may be almost afebrile.

7. A marked degree of leucocytosis.

These signs are the most frequent to be found in early pneumonia. There are others not mentioned here. An X-ray corroboration of early diagnosis by one or more of these findings is to my mind superfluous. Valuable time can be wasted which should be spent in further diagnosis along bacteriologic lines. However, if the physical findings are confusing, roentgenology serves the dual purpose of establishing the existence and location of pneumonic infiltration, and also of excluding any other confusing intrathoracic pathology. Portable instruments are now very efficient and should be used whenever there is doubt.

But the early clinical diagnosis of pneumonia does not rest with merely establishing the existence of the disease. Pneumonia of any kind today must be regarded as an emergency disease which brooks no delay if favorable results are to be obtained from either specific immune serum therapy or chemotherapy. To this end the completion of clinical diagnosis is only a signal for immediate work on the bacteriologic diagnosis. The earlier the causative organism can be identified and specific serum given, the greater is the effectiveness which can be expected from serum or chemotherapy. Mortality is directly in relation to the speed with which one gets proper serum to the patient, but it is not correct to assume that serum does good only in the first three days of the disease. Thus we see the complete diagnosis of pneumonia depending on bacteriologic information, as well as early clinical findings, both of which must be obtained as quickly as possible and with the greatest accuracy.

Since the pneumococcus causes by far the majority of all pneumonias, the most important procedure in the bacteriologic diagnosis of the disease is typing of the pneumococci after their demonstration. Material for typing may be obtained from lung puncture, blood culture, urine, or sputum.

While lung puncture is the most reliable method of all, it should be held in reserve for differentiation of organisms if there are multiple types or multiple organisms reported in the sputum. A series of 2,500 lung punctures done at the Harlem Hospital recently, to determine the reliability of typed sputum, revealed that in 7 per cent of the cases, the type

obtained from the sputum may not be the type actually causing the disease.

Blood culture is not thought of primarily as a typing method, yet it may be the only way to obtain type information. But by the time the blood culture is positive, we are not working in terms of early diagnosis. The blood culture is a reasonably good prognostic index and it is also used as a criterion for the intensity of treatment.

Urine typing is not used in diagnosis. If there is sufficient antibody in the urine, the patient is very sick and typing information is available from the sputum or the blood.

The sputum is the simplest of the typing materials to obtain. Perseverance will usually win in the cases of difficult collection. One can turn the patient on his side with the involved side uppermost, have him stay there a short time, and secretion will usually come down into the bronchus and be coughed up. There may not be much sputum but a tiny fleck is valuable. Some use the laryngoscope routinely to obtain sputum. In children it is frequently possible to get sputum from a gloved finger inserted well back into the pharynx. Occasionally the stomach tube produces a suitable sample for typing, for sputum is constantly being swallowed. Saliva as a rule contains too few pneumococci for direct typing, so that about four hours' incubation in broth or in the peritoneum of a mouse is necessary to increase their number. A thick, glary, tenacious, slightly blood tinged sputum is best for a direct typing reaction. If sputum is unobtainable, coughing should be induced to obtain whatever sample possible, and it should be speeded to the nearest typing laboratory.

Direct typing by the Neufeld reaction has been adopted almost universally as being the quickest, simplest, and fairly reliable. Complete study requires the additional inoculation of a mouse. Not only is mouse peritoneal exudate used in recovering the organism, but precise identification of the organism responsible for its septicemia must also be undertaken by culturing the mouse heart's blood or brain. Further, although the organism recovered from the sputum is responsible for the infection in more than nine out of ten cases when a pneumonia is present, the pneumococcus recovered may be merely carried by the patient, and some different organism be producing the pneumonia.

Granted the necessity for laboratory as well as clinical diagnosis, what bacteriologic procedure should we as practicing physicians use to complete the diagnosis and hasten the matter of treatment? My answer is to let a competent laboratory use their procedure after the doctor has hastened the sputum there. A practicing physician, urban or rural, should not be asked to assume the role of an experienced technician. The people who work in laboratories expect an error of five to ten per cent in working with typing reactions. They check themselves by repeating the test and by further procedures. I believe it is wrong for one not doing laboratory work to certify to the exactness of a type of pneumococcus, and have specific serum for that type administered to the patient. Let me repeat, the ideal thing to do with a sputum specimen is to send it quickly to a properly equipped laboratory.

North Carolina has sixty-eight expert pneumonia-typing technicians in fifty towns and cities throughout the State, each of whom were given an intensive course of training in the typing of pneumococci at Duke University in January, 1938. Many states have free typing stations, some with twenty-four hour service. Some states have arranged for free distribution of pneumonia serum in line with the traditional distribution of typhoid and diphtheria preventives and antiluetic drugs.

So it is seen that the early diagnosis of pneumonia can no longer be thought of as being only a clinical problem. The laboratory must be used in order to classify the pneumonia properly. When the physician determines that typing studies should be carried out, and only the physician should decide this, it is just the beginning of his work. All this uses an extra amount of his time. He often spends many hours at obstetrical bedsides. It may be necessary to spend six or eight hours with a pneumonia case in obtaining full diagnostic evidence and then proper material for treatment. But with serum treatment instituted properly, the patient's bed days are considerably shortened, and the chance for complications or death considerably lessened. For these reasons there is now quite an additional responsibility of the physician for early diagnosis in pneumonia.

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EDITOR'S NOTE.—Since this paper was prepared, a number of pneumonia typing stations have been established throughout Virginia, as will be noted in the Department of Public Health Statistics, in this issue of the MONTHLY.

DIAGNOSIS AND TREATMENT OF LOBAR PNEUMONIA.*

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Recent progress in the diagnosis and treatment of lobar pneumonia has saved many lives. In the United States from 1930 to 1935 there was an average of 96,500 deaths a year from pneumonia, or seventy-seven per 100,000 people, with pneumonia ranking as the fifth cause of death. This disease is widespread but shows geographical distribution, being most prevalent in the northeast and northwest and least in the southwest. Among the cities of over 100,000 population, Pittsburgh has the highest death rate from this disease, 217 per 100,000, and Long Beach, California, the lowest, 52 per 100,000. For the past three years Pittsburgh's death rate from pneumonia has been 161, 193, and 167 respectively per 100,000 population. The occurrence of this disease varies inversely with the family income.

The predisposing factors to pneumococcic pneumonia are numerous, and probably the most important is direct exposure of a susceptible person to a carrier or to a person who has pneumonia. Types I and II pneumococci are rarely found in the throat of a normal person, but these and other virulent types are frequently found in the throat of one who has been in contact with an infected person. External factors, such as exposure to cold with chilling of the body, inhalation of poisonous gases including anesthetics, alcoholic intoxication, and trauma, predispose the individual to acute pneumonia. Other predisposing factors are those favoring development of edema, since the edematous fluid is a favorable culture media and allows bacteria to multiply at a rapid rate. This fluid also protects the pneumococcus from the phagocytes, is practically free of antibodies, and contains a large amount of the carbohydrate capsular substance which likewise is resistant to antibody activity.

The mode of infection has long been a disputed question, but it is generally believed that the infection enters the upper respiratory tract and there the pneumococci are mixed with mucous secretions and are later aspirated into the lungs. The mucoid secretions protect the pneumococci from the phagocytes and permit them to multiply in a favorable medium. When this inoculum is present and irritation begins, there occurs in one hour slight dilatation of the capillaries, beginning infiltration of polymorphonuclear leukocytes, slight exudation of edema fluid in the alveolar spaces, and irritation of the alveolar epithelium. During the first eight hours there is a rapid accumulation of exudate which overflows into the surrounding alveoli and bronchioles, forming an excellent culture medium for transplanting the pneumococci. Within this infected area there is increasing engorgement of the capillaries with blood, the air spaces are filled with edema fluid, and the polymorphonuclears and pneumococci increase. The process so far is a peribronchial pneumonia. These small areas of infiltration fuse during the first eight to fourteen hours and take on the gross and microscopic picture of lobar pneumonia. The pathological picture from this stage on is well known. The above picture takes place in susceptible subjects. Frequently it is impossible to produce pneumonia by direct spraying of the nasal and oral mucous membranes. Intravenous, subcutaneous or intraperitoneal injections will not produce pneumonia in highly resistant animals, such as the rat and the dog; they recover without localizing lesions and the non-resistant ones succumb to septicemia.

Bacteriologic Diagnosis: The pneumococcus causes about 90 per cent of primary pneumonia in adults and about 50 per cent of the pneumonia in children. One child in eight to ten who has pneumonia has it secondary to measles and whooping cough. The pneumococcus is differentiated from the streptococcus by the presence of a capsule; it is bile soluble and has a characteristic colony growth. Thirty-six years ago Neufeld showed there were many types. Dochez and Avery reported three definite types and a fourth group with many types. Cooper and her associates define twenty-nine different types formerly classed under Group IV.

The classification depends on the carbohydrate substance contained in the capsule of the organism. The pneumococcus contains two substances, the carbohydrate of the capsule and the protein fraction of the body organism. Recent investigation has proved

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that Type XXVI cross-agglutinates with Type VI and Type XXX cross-agglutinates with Type XV.

Since 1902 the Neufeld reaction has formed the basis of much research. Neufeld demonstrated that when an anti-serum is mixed with a pneumococcus a swelling and a change in the appearance of the pneumococcus result. This was termed the Neufeld or Quelling reaction. Armstrong, Snead and Logan in 1932 in England, and Sabin in 1933 in America worked out the following Neufeld modification: a drop of sputum, a drop of dye and a drop of different anti-serums are mixed and examined in five or ten minutes, and the swelling of one or more pneumococci is sufficient to determine the type. This is done in a short time and in skilled hands is 95 per cent accurate. By this method all patients with a pneumococcic pneumonia can be given a definite type. The American Medical Association sent questionnaires to 4,535 hospitals, and of the 2,595 replies received 1,850 hospitals reported the typing of pneumonia patients for serum treatment.

Virus infection frequently prepares the soil for secondary invaders, such as streptococcus hemolyticus and H. influenzae which often produces atypical types of pneumonia. These cases occur sporadically and epidemically. The sputum cultures show an abundance of streptococcus hemolyticus and H. influenzae, but very few of these organisms are found in the sputum from pneumonia patients where the pneumococcus predominates. A mixed infection greatly influences the clinical course, alters the treatment, and has a definite bearing on the prognosis. In such cases the mortality rate is much higher. It is as important, therefore, to culture the sputum for predominant organisms as it is to culture the blood for bacteremia.

Early diagnosis in pneumococcic pneumonia is most important. If we wait until the classical physical signs of pneumonia develop, much valuable time will be lost. Dr. Rufus Cole who has done more than anyone else in advancing the serum treatment of pneumonia states: "If a person has a cold and then a chill, with fever over 102, cough, pain in chest, rapid respiration, and expectoration of bloody sputum, pneumonia is the diagnosis in practically every case. Typing should be done at once and specific serum given."

Most of the deaths from pneumococcic pneumonia can be prevented by a specific treatment, namely, antipneumococcic serum. In most diseases the best remedy becomes the most popular, and all physicians quickly learn to use that one, but this has not been true in the treatment of pneumonia. Estimates show that only 21 per cent of Type I cases are serum-treated. I believe the reason for this small percentage is the fact that those physicians who have not used the specific serum have not observed the dramatic results of the anti-pneumococcic serum. So specific is this serum for certain types of pneumonia that the clinicians who have had the greatest amount of experience believe if the patient does not show definite signs of improvement after sufficient serum has been given and twenty-four to forty-eight hours have elapsed, there is a complication, such as empyema, or there has been a mistake in the typing. There are several objections to the use of this form of treatment: (1) the technical difficulties involved in accurate typing, but this has been greatly simplified and typing stations are usually reasonably near; (2) the expense of the serum, but this is being overcome in many states and the serum is cheaper than a long illness and probably a funeral; (3) the uncertainty about its anaphylactic reaction and its efficacy. Its safety is shown in the records of the Massachusetts Department of Public Health reporting 1,313 cases treated with serum and only four deaths attributed to the serum. The effectiveness of the serum is well known and will be discussed later.

New York, Massachusetts and Michigan have had pneumonia control programs for several years and these have done much to increase our knowledge and to lower the death rate of pneumonia. The mortality statistics have varied greatly throughout the country from year to year, and likewise there has been a marked variation in the same locality at the time of different outbreaks. This is easily accounted for, now that we are more familiar with the different types. We cannot compare pneumonia mortality statistics as a group, but must compare them only as to types.

The most common type in most communities is Type I; the next in order are Types III, II, VIII, V, and VII. A statistical study of 6,545 cases occurring in New York, Boston, Cincinnati and San Francisco showed that 65 per cent of the cases occurred in eight of the types where we have a specific serum. The types of pneumonia higher than I, II, and III form an important group of cases. In this large series over 50 per cent were of the higher types. Thirty

per cent of these were in Types IV, V, VII, XVIII and XIX.

Specific serums for Types I, II, IV, V, VII and VIII have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Serum is being used experimentally for Types III, VI, IX, and XVIII, and in the Rockefeller Institute serum is being used on all types. It will doubtless soon be available for a much larger number of cases. MacLeod treated fourteen cases of Type III pneumonia with serum, with four deaths. Plummer treated nine cases of Type III with serum with three deaths. Type III serum has a good deal of shock-reacting material and it is hoped that this can soon be greatly lessened. The Pneumonia Advisory Committee has recommended "standardization of therapeutic serum", since they believe "the application of specific serum therapy to Types V, VII, and VIII cases will be hindered and handicapped as long as the potency of those serums cannot be uniformly measured and some reliable recommendation made as to the dose".

Until recently most of the serum used in the treatment of pneumonia was derived from the horse. During the past few years many cases have been treated with rabbit serum. This should be more effective, since the protein molecules are smaller than those from the horse serum and the protein molecules represent the antibodies. The rabbit can be immunized quickly, whereas horse immunization takes about a year and is much more expensive. The pleural and peritoneal fluids are more actively immunized by the smaller molecules. The objection to the rabbit serum is that following its use chills are more frequent and more severe. It is believed by many that small doses of acetyl-salicylic acid given just before the serum is administered will reduce the frequency and severity of the chills.

The amount of serum to be given varies with different observers. Cole for a number of years has advocated larger doses. He states that the pneumococci are virulent only because they possess capsules which in some mysterious way protect the virulent protein portion of the organisms from the leukocytes. A vigorous pneumococcus without a capsule can be grown and when injected into an animal will cause no infection, and if these organisms are placed in a mixture with leukocytes they are readily destroyed. Capsular substance is set free in the blood and body fluids in large amounts in very ill patients. When immune serum is added to this capsular substance, the antibodies of the serum become fixed by it and the encapsulated pneumococci will be entirely unaffected until after the capsular substance has been neutralized; then the immune serum will activate phagocytosis. Therefore, it is important to give the serum early and in large amounts before the capsular substance has had time to form.

Bacteremia requires large doses of serum. Bullowa's observations show that the blood stream is invaded by Types I and II on the fourth day or later, and in some cases it may be invaded quite early. He reports Type I invasion in one-fourth of the cases and Type II more frequently.

Dose of the Serum: There is a trend toward shortening the intervals between doses and giving much larger doses. Most physicians are treating with two doses those patients who are not sensitive to the intradermal or conjunctival tests. Type I cases are given an initial dose of 20,000 units and an hour later 60,000 to 80,000 units. Type II cases are given 20,000 units and then 60,000 units at hourly intervals for three hours. If a positive blood culture is present the dose should be doubled.

Effectiveness of the Serum: It is thought by many that serum treatment is ineffectual after the third or fourth day. This has not been the experience of those using the serum late in the disease. Cole reports 500 cases of Type I treated with specific serum within the first three days, with a mortality rate of 4.8 per cent; in those treated within the first four days the mortality rate was 8 per cent; five days, 8.6 per cent, and within the first six days 19.5 per cent.

Blankenhorn reports 1,000 cases, in which 230 were treated with serum with a mortality rate of 8.2 per cent. The expected mortality rate for the same types was 34 per cent; therefore, there was a reduction of 76 per cent in the mortality rate. Benjamin reports 50 consecutive cases of Type I treated within ninety-six hours without a death. In control groups reported from Ohio, Michigan, Connecticut, Pennsylvania and from England, Scotland and Denmark there was a reduction of 50 to 60 per cent in mortality rate of serum-treated cases in Type I; 40 to 50 per cent in Type II; and about 45 per cent in Types V, VII and VIII. Serum is of limited value in pneumococcic meningitis except with sulfanilamide and of no value in pneumococcic endocarditis.

In addition to the administration of serum in the

treatment of pneumonia, there are other factors which are of the utmost importance. Pneumonia patients die from dehydration and peripheral circulatory failure. It is, therefore, very important that every effort be made to prevent these conditions. Dehydration and hemoconcentration are easily controlled by sufficient fluids and sodium chloride. The circulatory failure is caused by the toxemia which produces dilatation of the capillaries; this slows the circulation and renders the capillaries more permeable, resulting in loss of fluid into the tissue space and increased cyanosis.

The patient's symptoms are a very good guide as to the toxemia present and the oxygen concentration of the blood. This is well illustrated by the symptoms and signs of mountain sickness. Mountain sickness may develop at an altitude of 10,000 feet when arterial blood is 87 per cent saturated; breathing is deeper and more rapid, the pulse is faster, there are dizziness, weakness, nausea and moderate restlessness. At an altitude of 16,000 feet the nervous symptoms are increased, there are headache, loss of appetite, restlessness, lethargy, impaired judgment, loss of memory, slowed reaction time, nausea and vomiting. Oxygen want is recognized by irritability, apprehension, loss of finer motor control, diminution of vision, yawning, sighing, irregular breathing, delirium and coma. Extra oxygen concentration is demanded in pneumonia because there is improper ventilation and breathing is shallow at first. Small amounts of blood circulate through a consolidated and airless lung, and the edema fluid prevents the diffusion of oxygen from the alveoli into the pulmonary capillaries. Effective oxygen administration should minimize the oxygen want, quiet the patient, control the nervous and mental symptoms, simplify nursing, and in many cases prevent peripheral circulatory collapse.

Powell, of Temple, Texas, has used roentgen radiation in over 100 cases with a mortality rate of 2.5 per cent in lobar pneumonia and 14 per cent in all types of pneumonia. Sulfanilamide has been used extensively, but there has not been sufficient control data to justify reporting the results, though the records of its use are very favorable. This drug should be used where specific serum is not available, and especially in conjunction with the serum where there is a positive blood culture, also in pneumococcic meningitis and peritonitis. Hydroxyethylapocupreine dihydrochloride has been used at the Mellon Institute, sponsored especially by Maclachlan. It is given there in fifteen grain doses every three hours day and night for three to five days, and in certain cases a 2 per cent solution of monohydrochloride is administered intravenously every three hours. Of 149 chemically treated patients, two developed pneumococcic empyema. Considering all types of pneumonia, Maclachlan's results in the past year are the same as in those cases given specific pneumococcic serum. Diathermy has also been used by some with good results.

Cecil and others have stated that when pneumonia patients are treated early with specific serum, the following phenomena are usually observed:

(1) The disease may be completely aborted, and all of the classical signs disappear within twelve to twenty-four hours after the administration of serum:

(2) There is usually improvement in the patient's general condition as the result of the disappearance of toxemia;

(3) The spread of infection from lobe to lobe and in the infected lobe is checked;

(4) Bacteremia is prevented, and if it does occur it is quickly checked and the suppurating sequelae are reduced;

(5) The leukocytes soon return to normal;

(6) Homologous agglutinins, precipitins and protective bodies promptly make their appearance in the circulating blood;

(7) Skin tests become positive to the homologous polysaccharides.

Conclusion: The treatment of pneumonia by typing and using specific serums is extremely important. Other measures, such as the use of oxygen, the prevention of dehydration, the administration of sulfanilamide, and the employment of diathermy are also valuable, and some or all of them may be utilized in conjunction with the serum therapy.

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DISCUSSION

DR. WYNDHAM B. BLANTON, Richmond: Dr. Chapman has given us a comprehensive discussion of a disease of vast economic importance. With what he has said we are all in agreement. It might be pointed out, however, that the present approach to pneumonia is through an etiological rather than an anatomical classification of the disease, and that "pneumococcic pneumonia" is probably a more useful term than "lobar pneumonia".

For the last two or three years we have been interested in a study of pneumococcic pneumonia in the wards of the Medical College of Virginia where the records of 100 typed cases are now available for study. We have been fortunate in holding a grant by which we have been able to administer antipneumococcic serum to all properly typed cases of the disease. Our experience has confirmed what Dr. Chapman has so admirably said in regard to the efficacy of serum. We have been able to reduce our mortality about 50 per cent using both horse and rabbit serum. We have given up the use of polyvalent serum because of severe thermic reactions which frequently accompany its use and because monovalent serum is a more rational therapeutic agent. We have been particularly interested in type incidence of the pneumococcus in Virginia and have assembled the results of more than 1,000 typings. All of our work shows the great predominance of pneumococcus Type I and on the whole parallels reports from other parts of the country.

As has been pointed out by the Professor of Medicine in the Medical College of Virginia, the tendency is to rely too implicitly upon serum treatment in a given case of pneumonia. It should always be borne in mind that the symptomatic treatment of the pneumonias is still of vast importance and attention to bowels, food and water intake, restlessness and cough, still require vigilance and often tax clinical acumen.

TYPE III PNEUMOCOCCIC PNEUMONIA WITH REPORT OF A CASE SUCCESSFULLY TREATED WITH SPECIFIC SERUM.*

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The classification of pneumococci into serologically specific types has made it possible to treat the pneumonias with specific serum. At first this was studied with reference to lobar pneumonia, but it has been found that different types vary in the uniformity with which they produce lobar pneumonia, atypical pneumonia or broncho-pneumonia or focal infection without pneumonia.

Most of the writers state that Types I and II are usually associated with primary lobar pneumonia Types III and VIII, which at first were confused and have been found to manifest themselves in several different forms of pathology.

The Type III pneumococcus has a large capsule, tends to grow in chains, and to produce large mucoid colonies on the surface of a solid medium. The Type III organism is found in meningitis, peritonitis, phlebitis, croupous pneumonia, middle ear infections, and in other conditions. It is the most common type of pneumococcus found in the normal nasopharynx. Most writers rank it third of the pneumococci in producing lobar pneumonia, while others claim that it causes as high as 20 per cent of the pneumococcic pneumonias. It occurs most frequently in older people.

Type III pneumonia is characterized by a sudden rapid onset with chill, pain in chest, and expectoration of rusty or blood-streaked sputum. It occasionally exists in a mild form that subsides in a day or two without any treatment, but it usually runs nine

*Read before a meeting of the Lynchburg Academy of Medicine, January 9, 1939.

or ten days, terminating by lysis. It very frequently starts in one lobe and spreads through an entire lung or develops in the opposite side, behaving in this manner much more frequently than the other types. The patients are very toxic and appear acutely ill. It is common for them to terminate fatally after a very short illness. The mortality varies in different reports from the various clinics, ranging from 40 to 80 per cent depending upon the location, ages of patients, and whether bacteriemia is present or not.

The specific pneumococcic serums are most commonly made by the use of horse serum. In some of the types the sera are very effective, but Type III made from the horse was found to be non-effective. Recently, it has been found that Type III made with rabbit serum is much more effective, but, whereas 40,000 to 80,000 units of serum in Types I and II have been producing remarkable results, it requires from 100,000 to 300,000 units of Type III rabbit serum to control Type III pneumonia.

Heintzelman, Hadley, and Mellon of Pittsburgh, Pennsylvania, in 1937 reported in *The American Journal of Medical Sciences* a series of Type III pneumonia treated with sulfanilamide. They reported a mortality of 74 per cent in cases treated with usual symptomatic treatment, and of only 22 per cent of those treated with sulfanilamide. However, if one analyzes their case histories, it can be seen that they have included several practically moribund patients on admission to the hospital and also several bacteriemic patients in their cases untreated with sulfanilamide. The treated cases were mostly admitted to the hospital early in the disease and in very good general condition on institution of the treatment.

Telling and Oliver of London, England, reported in June 18, 1938, issue of *The Lancet* a case of massive pneumonia, Type III, successfully treated with sulfanilamide.

Cecil and Lawrence reported two cases of Type III pneumococcic pneumonia treated with rabbit serum with a mortality of 50 per cent. They state that Type III, due to its prevalence, high mortality, and failure to respond to serum in the past has made it a serious problem.

Although I realize that one case is of little value, the principal purpose of this discussion is to report a case of Type III pneumococcic pneumonia successfully treated with Type III antipneumococcic (rabbit) serum.

CASE REPORT

Case: T. W. P., Jr., white, male, age seventeen, first visited November 20, 1938.

H. P. I.: The day before the first visit he had complained of pain in right shoulder. On morning of first visit he delivered eighty-five morning papers and came home complaining of headache, sweats, and feeling cold. Two weeks previously he had had a cold and some sinus trouble.

Examination: T.100; P.90; R.24.

Both frontal sinuses and right antrum illuminated poorly, turbinates swollen and edematous and completely obstructed right nostril. Balance of physical examination negative. Diagnosis of sinusitis was made.

P. H.: Pneumonia six years of age, followed by chronic running ear. Attack of sinusitis two months' duration in 1937.

F. H.: Grandfather had epilepsy.

Clinical Course: During A. M. on November 21 the patient had T.104; P.110; R.36. He was expectorating a small amount of blood streaked tenacious sputum and examination revealed a few crepitant rales over right base posteriorly. A diagnosis of lobar pneumonia was made and a specimen of sputum was sent for typing which was found to contain Type III pneumococci. In the afternoon before starting serum, examination revealed positive signs of consolidation over right lower lobe.

Treatment: Usual symptomatic and supportive treatments were instituted. On November 21 at 3:30 P. M. Type III (rabbit) antipneumococcic serum was started in 20,000 unit doses intravenously q. 2 or 3 h. until by 2 A. M., November 22, he appeared much better—T.101, P.98, R.32. However, about noon examination showed T.104, P.112, R.38, and crepitant rales were heard over middle and upper lobes of right lung. At 3:30 P. M. he was given 20,000 units of serum and at 8 P. M. 40,000 units, which were followed by an improvement of his general condition. On the morning of November 23 he appeared to be in a critical condition and his sputum was retyped. The pneumococci showed capsular swelling with all the typing serum. Physical signs were those of consolidation over the entire middle and upper lobes but subcrepitant and moist rales were heard over the lower lobe posteriorly. At this time he had a pneumonic condition of the entire right lung. Intravenous glucose was given to improve his general condition before resuming the use of serum,

and at 5 P. M., November 23, he was given 40,000 units of Type III serum. Also digifoline (1 cat unit) hypo. q. 4 h. was ordered. At 9:15 P. M. 35,000 units of serum were given and at 3 A. M., November 24, 25,000 units, thus making a total of 260,000 units of Type III (rabbit) serum given intravenously.

On the morning of November 24, T.100, P.100, R.34, and general condition seemed much improved. Chest examination revealed subcrepitant rales over upper and middle lobes and large moist rales over lower lobe and broncho-vesicular breathing over entire right chest. Resolution appeared to be taking place; therefore, serum was discontinued. 1,500 to 2,000 cc. 10 per cent glucose intravenously was continued daily. He seemed to be better but still was very toxic. I decided to give him the benefit of the doubt, so sulfanilamide, grs. x q. 3 h. was ordered. He continued to improve by lysis, so, on November 26, after a total of only 160 grs., sulfanilamide was discontinued. His general condition continued to improve except on morning of November 27 his temperature went to 104° and abdomen was distended. He was promptly relieved by a S.S. enema. After this he had an uneventful convalescence.

The pulse rate during the illness ranged around 100, except on the third day it went to 114, fifth day to 120, and on the sixth day to 124. The respiratory rate ranged from thirty-four to thirty-eight. The chart shows the temperature curve.

SUMMARY

A critically ill Type III pneumococcus pneumonia patient was successfully treated with Type III (rabbit) antipneumococcus serum. The first 100,000 units controlled the initial lower lobe involved, but he developed a pneumonic condition of the middle and upper lobes which responded to 160,000 units more of serum, thus making a total of 260,000 units. Intravenous glucose was a valuable aid in treating this case. Digifoline, ice cap, aspirin, forced fluids, and codeine made an important part of the treatment. Sulfanilamide was not started until the patient was much improved and showed signs of early resolution. I do not believe it had any bearing on the outcome of the case.

The case was treated in the home, thirty miles from a hospital.

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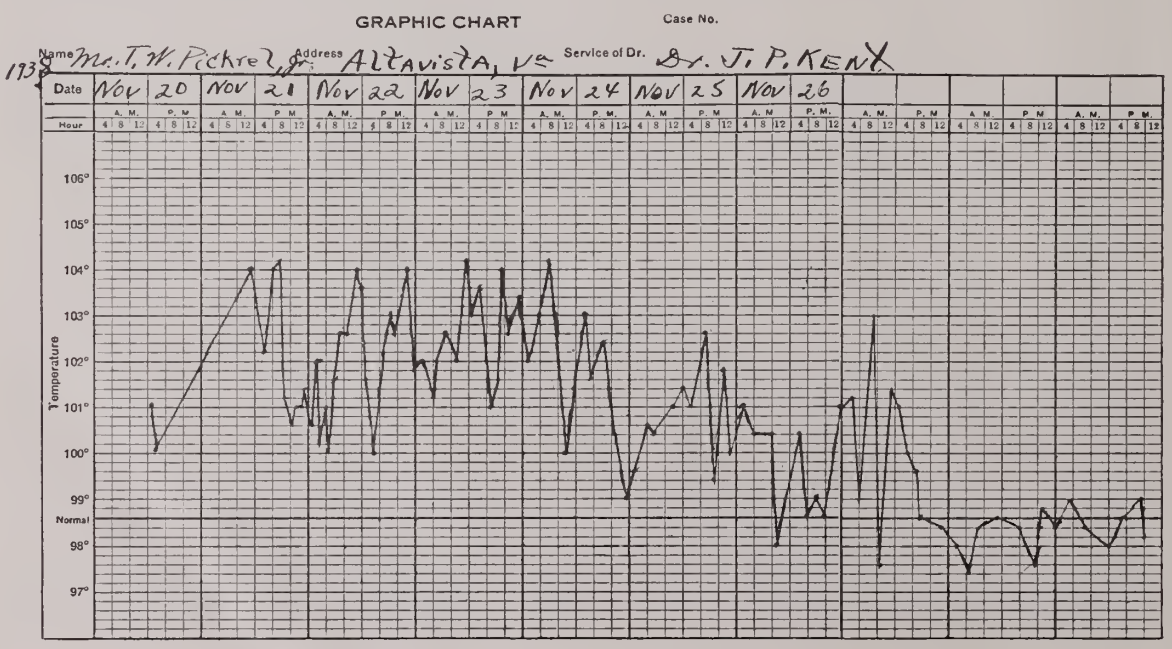

PREVENTION OF THE COMMON COLD.

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The common cold continues to be a very time consuming disease, being both painful and inconvenient to its victims. It also lays the ground-work for other diseases which are more dangerous and of even longer duration.

I feel that it is impossible to assign a cause for the common cold that can be verified, but it seems to me an acceptable hypothesis that a cold originates with a virus infection accompanied by multiple invading bacteria. In reviewing the following cases collected over the past three years in which vaccines have been used subcutaneously as a preventive measure, I am impressed that some of these patients stated that in the winter following the fall preventive treatment they had the apparent beginnings of colds which lasted from twelve to thirty-six hours but never materialized. It is my impression in these cases that the virus was not affected by vaccine administration but that through it the accompanying bacterial invaders were warded off because the body had been taught to fight certain of these germs.

I wish to stress the method used in administering the vaccine as a preventive measure. I feel it should be started well before the cold season, and instead of the often used four dose method the vaccine was administered at from five to seven day intervals. The amount began with from 0.05 c.c. to 0.1 c.c. and 0.05 c.c. to 0.1 c.c. was added at each dose until one c.c. was administered as the final dose. If possible, any local reaction larger than the size of a silver dollar should be avoided preferably keeping the local reaction much smaller than this by holding, if necessary, the amount to the same as the previous dose or decreasing from the previous dose, and attempting to never have any general reaction.

I am convinced that by following the above procedure the body is gradually taught to resist certain of the germs which at one stage or another accompany the common cold and that this extremely slow method is superior over the larger doses. The number of cases is too few to provide any statistical data but I use them to support my own clinical impression that the administration of cold vaccines using the above technique gives enough good results to justify their use.

In the following cases, unless otherwise stated, the Catarrhalis Combined Vaccine used was a stock vaccine preparation by Lederle, containing per c.c. 200 million mic. catarrhalis, 200 B. freidlander, 200 pneumococcus (I, II, and III), 200 streptococcus (hemolyticus and viridans), 400 staphylococcus (alb. and aur.). In one case Lederle's Catarrhalis Influenza Vaccine was used which is the same as the above plus 200 million B. influenza. The latter preparation when used had a tendency to give more local reaction and more general reaction, and showed no advantage over the Catarrhalis Combined Vaccine.

There being no way to determine a person's susceptibility or duration of immunity to the bacteria used in the Catarrhalis Combined Vaccine, the recommendation is made that he receive a preventive course each year.

Case I. White, male, sixty-seven. Store-keeper. Was seen first in June of 1936 with a history of having since late in April a wheezing, cough, and slight shortness of breath. Past history revealed that he had had a similar attack about ten years before and that for approximately the past twenty-five years he had suffered with about three bad colds a year.

Examination was negative except for hard wax in the ear canals, nasal mucous membranes congested, and a definite wheezing when he talked during the history taking. The lungs were negative, the heart tone poor, and blood pressure was 148 over 80. Laboratory work was negative with the following exceptions: coagulation time seven minutes and blood calcium 8.8 mgms. per 100 c.c. Lung X-ray was negative.

Patient was placed on calcium lactate, grs. ten, three times a day, and digitalis, grs. one and one-half, daily. He improved satisfactorily.

In September of the same year he was started on a course of Catarrhalis Combined Vaccine subcutaneously, being given it at an interval of from five to six days with the following graduation of doses: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1 c.c., the course being completed by the first of November. At no time during this course did he have any local

reaction larger than the size of a silver dollar, no systemic reaction at all, and no cold.

When seen the next year in September, 1937, he stated that he had had the best winter that he had ever had, only once or twice feeling as if he were taking cold, the entire effects being over within twenty-four hours. The patient stated that at this time he again felt as if he were developing a cold, so the series of cold vaccine was again given at five to six day intervals, starting with 0.05 c.c., repeating the next four doses at 0.05 c.c. The patient stated after each dose that he felt as if he had a little cold and for this reason the next four doses were held to 0.1 c.c. At this point he stated that for the first time he felt absolutely cold free, although at no time had he had more than the slightest signs. The dose was then increased to 0.15, 0.2, 0.25, 0.3 and again held at 0.3 because he had a slight cold one evening during the intermission between doses; then given at 0.35, 0.4, held at 0.4 because of another slight cold, and followed through with 0.5, 0.6, 0.7, 0.8, 0.9 and stopped at 1 c.c., the last dose being given the first week of January, 1938.

The patient was seen by appointment in February and stated that he had a definite cold the first week after finishing the course of vaccine but that it was not severe.

When seen in September of 1938 he was given 0.1 c.c. of Catarrhalis Combined Vaccine and advised to have a general examination. At this time he voluntarily stated that he felt better than he had for years and that he attributed it to being free of colds; and, while his records showed that he had had some slight cold since treatment with the vaccine, he stated that they were so mild that he would have ignored them except that he had been instructed to report the slightest feeling towards a cold. Examination revealed that he had gained ten pounds in weight since being seen in 1936, mucous membranes of the nose were normal in appearance, blood pressure 160 over 100, heart tone fair. Laboratory work gave results within normal limits. He had received during the time since being seen in 1936 no medication except the calcium lactate and small doses of digitalis over the first three months' period, and Catarrhalis Combined Vaccine, as stated.

He had been started on cold vaccine subcutaneously as noted on September first of this year, it being continued at five to six day intervals and in the following doses: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, and 1 c.c. He had no cold during the administration, no systemic reaction, and no local reaction larger than the size of a quarter.

In this case I wish to call attention to the individualization of the administration, the 1936 course consisting of ten doses, the 1937 course consisting of twenty-three doses, and the 1938 course consisting of ten doses. It is felt important to stress the fact that each administration must be based on the events arising in that particular case and no promise should be made the patient to administer the vaccine in any set number of doses. Also, I wish to call attention to the fact that this patient had twenty-five years of experience with his colds before he received vaccine medication and two years' experience with Catarrhalis Combined Vaccine; and he feels that the symptomatic relief has been most satisfactory and he is justly enthusiastic about the procedure to date.

Case II. White, female, age thirty-four. School teacher. Seen first in July, 1937, because she had been advised to have a yearly examination. This was done because her father has an arrested case of tuberculosis. History revealed that she has had colds every year for the past fourteen years, usually three to four colds each winter, developing each new one about the time that the last cold was better. She uses this time limit because it is the number of years she has taught school and they have caused her a great deal of inconvenience while attempting to work. Examination was normal throughout. X-ray of lungs showed no demonstrable pathology. Hemoglobin, Sahli, 90 per cent, with 3,750,000 red cells. Blood calcium 8.6 milligrams per 100 c.c. She was placed on calcium lactate, grs. 5, before meals; ABCD capsules one daily; and one kapseal of Ventriculin, iron and vitamin B after each meal.

She was advised to take preventive Catarrhalis Vaccine therapy and started it on November 2, 1937. It was given twice weekly in the following graduated doses: 0.1, 0.2, 0.3, 0.4, 0.55, 0.7, at which time she experienced a local reaction over the size of a dollar and a slight chill that night. The next dose was held to 0.7 and the time changed to a six-day interval. The next doses were 0.85 and 1 c.c. When seen six weeks later, she had no colds and, when seen in March of 1938, she stated that she had no cold that winter, the first time in fourteen years, and she naturally felt that the vaccine had been a decided help. When seen in September of 1938, she stated

that during the summer she had one cold which lasted two weeks.

She was started on her 1938 course of Catarrhalis Combined Vaccine on September twenty-seventh with 0.1 c.c. subcutaneously. At weekly intervals she was given 0.2 and 0.35. Because the last dose gave her a local reaction larger than the size of a silver dollar, the next dose was held at 0.35. This is the point this case had reached at the time of writing. The calcium lactate and ABCD capsules were continued throughout last winter. This year she was placed on iron sulfate, grs. 3, t.i.d. for 300 pills as preventive treatment for anemia. In this case I merely wish to call attention to the long history of the colds and the first break in their course after therapy was instigated. More definite conclusions may be drawn after several years.

Case III. White, female, age 21. Housewife. Seen first in 1934 at the beginning of her first pregnancy. She was referred to an obstetrician and the accompanying anemia controlled with iron medication. At that time she stressed her difficulty with colds, stating that she had had colds ever since childhood; that it seemed to her her colds are contact colds, having at least one cold a month during the winter season because she takes a cold every time she comes in contact with anyone who has a cold.

She had never received cold vaccine. Vaccine therapy was advised and started the latter part of October, 1935, the first dose being one-sixteenth c.c. At weekly intervals this was followed with two-sixteenths and five-sixteenths, at which time she had a local reaction larger than a silver dollar. Next dose eight-sixteenths was given, no unusual reaction following; then she was given twelve-sixteenths, followed by a full c.c., the last dose being given November 25, 1935.

When the cold situation was again discussed with her on November 19, 1936, she stated that she had no more colds after taking the vaccine treatment in 1935.

On November 19, 1936, she was again started on vaccine therapy. She was scheduled to receive treatment twice a week and was given: 0.1 c.c., 0.2 c.c., 0.4 c.c., 0.6 c.c., 0.8 c.c., and on December 5 1936, one c.c. She was advised to return the first of September of 1937 for preventive treatment again.

When she returned she had had no cold since being seen in 1936. She was again pregnant and had placed herself under the care of her obstetrician. He was written in regard to giving the preventive vaccine therapy and suggested in reply that it be deferred until after delivery as she was expected to deliver about the tenth of September. The patient did not deliver until October sixth, and on October first contracted a severe cold which lasted two weeks.

On November 16, 1937, she was started on her yearly course of cold vaccine, using Catarrhalis Influenza Vaccine at weekly intervals, being given 0.1, 0.2, 0.4, 0.5, 0.6, at which time she developed a severe cold, and the next dose was held at 0.6. She was seen again three days later and the cold had greatly improved. She was again given 0.6 because the last dose had given a local reaction about three inches in diameter. She was then given 0.75, 0.9, and one c.c., and was advised to return the first of August, 1938, for further prevention.

She returned September 6, 1938, stating that she had had no cold since last December, despite the fact her husband, during that time, had been ill with a cold and sinus trouble. This year it was planned to give as few doses as possible, and again the Catarrhalis Influenza Vaccine was used on a five or six day schedule. The doses were 0.2 and 0.3, and then, when she returned for her third dose, she was beginning to menstruate, had a bad cold, and felt extremely ill; so vaccine was not given. She was seen five days later, at which time she stated that her cold was just as bad as any she had ever had but that the time it lasted was much shorter than formerly, the complete course of the cold being approximately eight days, and that it left very suddenly. She was given 0.5 c.c., and the next dose was held at 0.5 because there was a three inch local reaction, and she had also felt that she had some temperature the day following the last dose. At this time she was started on ten grains of acetylsalicylic acid with each dose of vaccine. She was given 0.7 and 0.85, when the reaction was larger than a silver dollar, so 0.85 c.c. was repeated; and on the twenty-sixth of October, 1938, the reaction still being larger than a silver dollar, she was again given 0.85, the last dose of this year's course.

Next year, it is planned to return to the Catarrhalis Combined Vaccine, to start her series the first of August, and, to attempt to keep the local reaction smaller than the silver dollar size.

This case with its long history of colds and its definite improvement during the administration of vaccine lends impressive clinical evidence in sup-

port of this therapy. It is my feeling in this case that more local reaction was obtained with the Catarrhalis Influenza Vaccine than with the Catarrhalis Combined Vaccine and that the Catarrhalis Combined Vaccine was just as effective as the Catarrhalis Influenza Vaccine.

Case IV. White, female, age forty-three. First seen in 1935 with a diagnosis of mixed type arthritis, osteo, rheumatoid, and fibrositis. One diseased tooth was removed. The tonsils were considered possible foci of infection. Her rheumatic medication consisted of sulphur intramuscularly and Streptococcus Immunogen Arthritis intravenously. The arthritic condition was controlled and she progressed most satisfactorily.

In her history, the patient stated originally that she had had ever since 1909 four to six severe colds every winter; that approximately fifteen years ago she received cold vaccine, four dose method, with no results; that eight years ago she again received cold vaccine, four dose method, with no results. The administration of neither the sulfur-diasporal nor the Streptococcus Arthritis Immunogen had any effect on her colds.

In 1936 she was given Catarrhalis Combined Vaccine by her family physician at my suggestion at three to five day intervals, starting at 0.1 c.c. and increasing 0.1 c.c. until 1 c.c. had been given. This was started in November. This had no effect on her regular colds for the rest of 1936. In 1937, although she did not receive a cold vaccine, she had no colds and this had never occurred for a whole year before.

In September of 1938 she again had a cold. On the seventeenth, after she had recovered from her cold, she was started on Catarrhalis Combined Vaccine at weekly intervals in doses of 0.1, 0.2, and 0.3 c.c. at which time the local reaction was larger than a silver dollar. The next dose was 0.3 c.c. and the following dose 0.4 c.c. This was the point reached at the time of this writing.

In this case I feel it is too early to be positive of the results obtained. The points of interest are that, in the past, the four dose method of administering cold vaccine was not effectual; and that in 1935 the administration of intramuscular sulphur and intravenous Streptococcus Immunogen Arthritis had no effect on the colds.

BANG'S DISEASE.

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Bang's disease, known also as Brucelliasis and infectious abortion, is a chronic, infectious disease of cattle, swine, goats, and occasionally other domestic and wild animals. In man the disease is generally known as undulant fever, Malta fever, or Mediterranean fever.

ETIOLOGY

The disease is caused by a non-motile short bacillus or coccus which is destroyed by pasteurization. Although there is some dispute as to the correct nomenclature, the name *Brucella melitensis* var. *melitensis, Br. melitensis* var. *suis* and *Br. melitensis* var. *abortus* are the terms most frequently used to designate the goat, swine, and cattle varieties of the organism. Their pathogenicity for man is in the order named, the first being the most pathogenic.

SYMPTOMS

The organism frequently exists in the domestic animals without producing noticeable symptoms. When symptoms are present, the most characteristic are abortion by pregnant females, sterility in both sexes, and a higher than normal incidence of mastitis in dairy cows.

PATHOLOGY

The organism gains entrance to the body of susceptible animals through the digestive tract, the conjunctiva, the unbroken skin, and the genital tract. It is carried by the blood and lymph streams to the mammary glands and to the uterus and placenta of pregnant females. It may also be isolated from the ovaries, testicles, epididymi, seminal vesicles, prostate glands and all the lymph nodes adjacent to these organs. When the organism invades the pregnant uterus and its contents, necrosis of the placenta and death and abortion of the fetus usually occur. This may take place at any time after conception or the fetus may be carried full term and be born dead or alive in a moribund state. In some cases,

if the organism is not too highly pathogenic, the fetus may be born alive and not succumb to the effects of the infection.

DIAGNOSIS

The organism causing Bang's disease is readily isolated from the milk (where it is found in great numbers), placenta, amniotic fluid and uterine discharge of infected females. It is recovered with difficulty from the blood, urine and feces. The most practical means of diagnosing the disease, and only method in general use by regulatory officials, is the agglutination test which has shown itself to be a highly accurate diagnostic procedure for the disease.

OCCURRENCE

Bang's disease is spread widely throughout the cattle population of the world, but in swine and goats it is most prevalent in those areas where their concentration is greatest. In Virginia, the Division of Animal Industry of the State Department of Agriculture and the Bureau of Animal Industry of the U. S. Department of Agriculture, in cooperation, have since 1934 tested all the cattle in seventy-eight counties and are working in eight others. Approximately 3.5 per cent of all cattle on the initial test reacted positively. The disease is not of economic importance in the other domestic animals in Virginia and probably is relatively rare in swine and goats.

Bang's disease has existed in Virginia for a long time, but has become prevalent only in the last decade, partly as a result of the advent of the motor truck and the increasing frequency with which cattle are moved from one herd to another. The prevalence of the disease in an area is in almost direct proportion to the amount of trafficking there has been in cattle.

CONTROL MEASURES

The only regulatory measures that have proven successful in the control of Bang's, or any other infectious disease of the domestic animals, has been the complete elimination of all infected individuals. Virginia is leading all the States in the Union in the progress of Bang's disease eradication. As stated above all the cattle in seventy-eight counties have been tested and the work is in progress in eight others. The practice is to test all cattle in a county and, where infection is found, retest the herds at frequent intervals, until all latent cases have been discovered. To December 31, 1938, 1,441,075 tests had been conducted since the State-wide eradication program was begun in 1934. This number includes both the initial and retests and has disclosed over 50,000 infected animals which have been slaughtered. The test is made free of charge to the owners, who are indemnified by funds from State and Federal sources for infected animals. It appears now that Virginia will be free from Bang's disease within a few years and that the Old Dominion will again point the way for the other states to follow. For this we are, in a large measure, indebted to the far-sighted wisdom and judgment of Dr. H. C. Givens, State Veterinarian.

ROENTGEN RAY EXAMINATION OF THE COLON.*

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Naturally no attempt will be made to cover in detail all phases of X-ray examination of the colon. We shall endeavor to discuss general principles involved and illustrate the application of these principles with findings in a few of the more common lesions.

Few examinations in the field of radiology require more in the way of experience, judgment and attention to detail than the one under discussion, and few yield more satisfactory results if the requirements are met.

As in all roentgen ray examinations, recordable findings depend upon variations in density. In the case of the colon three methods of attaining this are in general use: First, the giving by mouth an emulsion of some opaque salt, such as barium sulphate, and watching the progress of this meal through the colon. Second, a similar preparation may be given by enema with appropriate examination by screen and plate. Third, a double contrast effect may be pro-

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duced by inflating the colon with air after partial expulsion of the barium enema. In the third method, preparations—other than the usual suspension of barium—which have the property of flocculating on the mucosa may be of distinct advantage since by this method a more detailed study of the mucosa is made possible.

Generally speaking, information in regard to the physiology of the colon is best obtained when the opaque emulsion is given by mouth. Morphological changes are better brought out, more easily located, when the enema method is used. The method or combination of methods to be used must be decided upon for each individual case. When the clinical symptoms point rather definitely to a lesion of the colon, it is usually good judgment to start the examination with a barium enema.

We shall select only a few of the many pathological lesions of the colon in which roentgen ray examination is helpful. First, let us consider the so-called "spastic colon". Many of these cases a number of years ago were given the diagnosis of "spastic colitis," "mucous colitis," and the like, and, although they give rather definite and often spectacular roentgen findings, are no longer correctly considered under the head of colitis. They are not true inflammatory lesions of the colon as those names would imply, but are the reactions of this particular part of the intestinal tract to some general disability, whether functional or organic. These findings are frequently associated with other definite symptoms of neurosis. If we made an estimate of the incidence of this condition among those who come up for examination we would find it high, very high among the neurotic, among women who for long periods have been constipated and taken cathartics in excess, very high in any group poorly adjusted to their environment. The chief reasons for including this condition in such a discussion as this are, first, to call attention to the error of indicating by roentgen report findings that would suggest an organic lesion of the colon when no such lesion exists; second, the grave danger of overlooking a serious organic lesion in our enthusiasm to report this finding which is only a symptom. It is a symptom which calls for an investigation as to its cause. It may be secondary to an organic lesion of the colon or elsewhere, or it may be impossible to find any organic lesion responsible, in which case a neurological basis must be sought.

The roentgen findings in an unstable colon include: a rapid upward passage of the column of barium when given by enema; a decrease in the caliber of the colon, usually most marked in the left, with often dilatation on the right; and changes in haustrations, these being often diminished, effaced or even exaggerated. There is considerable variation in degree of these findings. A section of the colon may be narrowed to pencil size, giving the so-called "string sign".

Our next classification will be considered under the general head of colitis—cases where a true inflammatory condition of the colon exists. The findings in this condition will depend upon the stage which the disease has reached when the examination is made. All of the findings noted in the unstable colon, that is spastic areas, changes in haustrations, narrowing and the like, may be present in a true inflammatory lesion. In fact, it may be impossible to distinguish definitely between an unstable colon and a true colitis in the early stages. Where it is possible to obtain information in regard to the condition of the mucosa the differential diagnosis is much more definite. The longitudinal folds tend to disappear while the transverse become more prominent. There may also be other evidences of a swollen mucosa.

Cases which reach the ulcerative stage show more definite findings. At times low fine indentations and other characteristic findings of ulceration may be noted. Walls are thickened and become more rigid. Haustrations tend to become obliterated. Using the double contrast method of examination roentgenograms frequently show a fine moth eaten appearance. Still later stages may show a markedly shortened, smooth, rigid "gas pipe" colon.

Two lesions of the colon in which the primary etiological factor is a specific organism should be considered. These are lesions due to the tubercle bacillus and to the amœba.

The incidence of gastro-intestinal tuberculosis among patients suffering from the pulmonary form of this disease is surprisingly high. The region of the cecum and the terminal ileum is the most common site for tuberculosis. Roentgen findings include irritability or deformity of this section. The involved area tends to rapidly empty itself. An examination made after giving barium by mouth will frequently show this section empty or partly empty with sections, both proximal and distal, well filled. Any failure to visualize the cecum and adjacent ascend-

ing colon during a gastro-intestinal examination calls for the consideration of tuberculosis as a possible cause.

In only a limited group of cases of amœbic infection is roentgen examination of value. Pathological changes may be so slight that nothing of significance is found. The disease may be so violent that this examination is contraindicated. In subacute cases or cases under treatment this type of examination may be of value in determining the extent of the lesion and in following the progress of a case responding to specific therapy.

Although lesions due to amœba may give no characteristic roentgen findings the condition should be considered when evidence of ulcerative colitis is found. In a typical case the colitis will be localized in a number of areas with apparently healthy portions between. Again, the most frequently affected section is that in the region of the cecum and ascending colon, but this time the terminal ileum is normal.

Colitis due to other organisms will not be discussed except to call attention to the fact that the first evidence of a streptococcic colitis is usually seen in the distal colon.

Our discussion of polyposis will have to do primarily with that type of this lesion implanted on a pre-existing inflammatory process. This group probably includes most of the cases found.

The roentgen findings include those to be expected in a rather long standing ulcerative colitis, irritability changes in haustration and the like. By using the double contrast method more definite evidence of the polypi themselves can be brought out. Typical findings in a well developed case of polyposis will include small rounded areas of diminished density giving a more or less moth-eaten appearance. Care must be taken that small masses of fecal matter are not giving this appearance. Shadows from the latter shift position after partial emptying.

Diverticulosis is another lesion of the colon frequently encountered. The incidence is especially high in over-weight patients past middle life. They are frequently present when evidently not an important factor in the case. It is not unusual to find scattered diverticuli in a case coming up for examination for symptoms due to a lesion not in any way associated with the diverticula. Typical X-ray findings in a case of diverticulosis are rather definite. Small lesions without a fecalith cast a bud-like shadow projecting beyond the lumen and show up clearly if their position is advantageous. If a fecalith is present a ring-like shadow may be present. Films taken after evacuation are important in bringing out evidence of diverticula. The barium may remain in the lesions for long periods after the barium enema has been given. It is not unusual to find retention for days, even weeks.

Diverticulosis becomes a factor when through inflammatory changes a diverticulitis develops. Roentgen ray evidence of this consist in evidence of inflammation, spasm, rapid emptying, swelling of the mucosa with a "saw tooth" appearance to the involved part.

The sigmoid and descending colon are the most common sites for this lesion, though other areas may show involvement.

Benign tumors of the colon are not common unless we consider polyposis in this group and, as has already been pointed out, this lesion is usually a later manifestation of an inflammatory process. Other tumors, such as fibroma, hemangioma, and lipoma do exist. The typical roentgen finding consists of a filling defect dependent upon the size and shape of the tumor.

Carcinoma of the colon shows a high incidence. Among malignant neoplasms of the gastro-intestinal tract this location is second only to the stomach. As to the location of the lesion in the colon, any part may be involved, the sigmoid is the most frequent site.

In advanced cases of carcinoma of the colon the roentgen findings are marked and interpretation relatively definite. Typical findings may include one or more of the following: filling defect either of the "napkin ring" type or irregular fungating in character; obstruction of varying degrees; dilatation proximal to the lesion; changes in haustrations; changes in the mucosal pattern.

The type of lesion giving annular "napkin ring" defects is usually located in the left colon. Evidence of obstruction is an early finding in this type of lesion. The medullary or cauliflower type occurs most frequently in the cecum and rectum. Obstructive findings are usually late. The course of the involved area in a neoplasm is usually eccentric to the normal lumen proximal and distal to it.

Changes in haustrations and in the mucosal pattern are more difficult to demonstrate, but a study from this standpoint is frequently necessary in mak-

ing a differential diagnosis between carcinoma and an inflammatory lesion. In case of carcinoma the area involved is usually abruptly delimited from the uninvolved parts adjacent, while an inflammatory lesion fades more gradually into normal colon. An inflammatory lesion shows evidence of swelling of the mucosa, frequently giving the "saw tooth" margins. In carcinoma, destruction of the mucosa is the expected finding.

Double contrast methods and mucosal studies are important. A carefully done examination or series of examinations in suspicious cases will increase the percentage of correct diagnoses, especially in the early cases. One of our problems here, as in carcinoma elsewhere, is early diagnosis.

Slides were shown in the presentation of this paper.

DISCUSSION

DR. C. H. PETERSON, Roanoke: The hour is late, and I shall take only a short time to discuss this very interesting paper.

There are three points I should like to emphasize. The first is the frequency with which massive hemorrhage occurs from the bowel with sigmoid diverticula. We are quite delighted to find in a fairly high percentage of those individuals that the lesion is benign and not malignant. In the second place, Dr. Gilmer has mentioned the different types of colitis. It is very difficult at times to differentiate localized colitis from malignancy. There is a type of colitis which gives the colon a rigid appearance, without ulcer formation. (The first case I saw I diagnosed as carcinoma of the colon). On proctoscopic examination the colon is found to be injected. Under suitable treatment the patient should get along all right and make a complete recovery within a few months.

The next point is the frequency with which we find carcinoma of the large bowl. We find it in a large number of older patients and in quite a number of younger ones. Any person of middle-age with indefinite symptoms, anemic and run down, should have an examination of the large bowel, because frequently there is a carcinoma there which is producing no direct symptoms.

Dr. Gilmer is to be congratulated upon his paper and particularly upon his lantern slides.

OTOGENIC ACUTE SUPPURATIVE ARTHRITIS.

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All complications of acute mastoiditis are of serious nature. Judging from the paucity of clinical reports in the literature, acute septic arthritis complicating acute mastoiditis is of rather rare occurrence. Although an acute arthritis does not compare with the serious prognosis and mortality of the intracranial complications of mastoid infections, its appearance adds to the gravity of the situation and portends a possible permanent joint disability.

Acute metastatic suppurative arthritis of middle ear or mastoid origin necessarily indicates a bacteremia, but apparently can occur without a venous sinus thrombosis, or at least a clinical or macroscopic thrombosis. Skeletal metastatic lesions can occur in joints, muscle, bursa, and bone. The hips are said to be involved more than any other joint; in this study the knees were involved most frequently.

From an otologic point of view, this problem resolves itself about an early diagnosis, because the successful outcome depends on prompt recognition of the complication and an understanding of the problems of treatment confronting the orthopedic surgeon.

The onset of acute suppurative arthritis is usually sudden. It may begin as a polyarthritis and finally settle in one or more joints. Pain with the joint at rest, and on slight degree of passive movement when adjacent muscles are relaxed, is most severe. Swelling, with effusion into the joint cavity, and tenderness to pressure is marked. There is a sudden elevation in the temperature to 102-104° with a corresponding leukocytosis. Frequently these cases are diagnosed acute rheumatic fever or acute infectious arthritis. The former usually involves mutiple joints and presents less alarming constitutional symptoms. The severity of the symptoms of acute suppurative arthritis and the presence of a primary source of infection should indicate to the wary surgeon the necessity of close observation and early aspiration. The question of aspiration and culture of the fluid is an important one; the procedure is harmless using the proper aseptic technique, and is of great diagnostic and therapeutic value. Osteomyelitis and acute gonorrheal arthritis should be considered in the differential diagnosis.

X-ray is of little or no aid in the early diagnosis. Later it is of value in the determination of joint

damage and the estimation of future joint disability. It is also a help in determining the condition of the bones adjacent to the joint.

Etiologically this condition can be caused by: 1st—direct injury to the joint; 2nd—extension into the joint cavity from an adjacent osteomyelitis or cellulitis; 3rd—metastasis from distant foci. The latter applies especially to this paper. The primary focus can either be an acute infectious disease like scarlet fever, meningitis, or pneumonia, or a localized infection as tonsillitis or mastoiditis.

In children, as studied by Harris, metastasis is the most frequent mode of infection in acute suppurative arthritis—62.8 per cent of his cases. Traumatic acute suppurative arthritis occurred in only 9.8 per cent, and extension into the joint from an adjacent osteomyelitis in 27.4 per cent. The ear was said to be the primary focus in approximately 29 per cent of the metastatic cases, or 10 per cent of all cases. In adults, of course, trauma is the chief etiological factor.

Atkins reported forty cases of lateral sinus thrombosis in which metastasis occurred in sixteen cases. The joints were most commonly and the lungs least commonly involved. All but one of the joint metastatic cases recovered.

Considering joint suppuration from all causes, the staphylococcus is cultured in approximately half of these cases. The hemolytic streptococci is found in 25 per cent, and the remainder is caused by a variety of organisms, meningococci and pneumococci particularly. In metastatic arthritis, especially of ear origin, the streptococcus and pneumococcus predominate.

Through the courtesy of Dr. Fletcher Woodward, I examined the records of the University of Virginia Hospital. During the last ten years twenty-four cases of purulent arthritis were recorded. Of these two, or 8 per cent, were associated with ear infection. The first case presented a history of acute tonsillitis and of otitis media; pneumococcus type III and staphylococcus albus were cultured from the knee joint. In the other case the otitis media complicated measles and pneumonia; the suppuration of the hip joint was preceded by a mastoidectomy. The blood culture was negative. Nonhemolyticus streptococcus was cultured from the hip joint. Seventy-one per cent of the remaining cases of suppurative arthritis, mostly adults, were of traumatic origin; in 21 per cent the etiology was unknown. Bacteriological studies were made on eight of these cases; in seven the staphylococcus albus or aureus were cultured and in one the hemolytic streptococcus.

Krida writes of the complications of joint suppuration. In their order of importance they are: 1st—death; 2nd—chronic suppuration with discharging sinuses and chronic toxemia; 3rd—bony ankylosis with or without deformity; 4th—joint disorganization with painful limitation of motion usually with deformity; 5th—temporary stiffness of the joint with gradual recovery of function.

Most authorities advise early aspiration, application of heat by all methods, and joint rest by means of the posterior plaster or similar splint. The further treatment of the joint depends on the severity of the infection and the training and opinion of the attending surgeon. Aspiration and lavage; incision and drainage; joint opened by one or more incisions and motion instituted according to the technique of Willems; and wide open drainage are the usual surgical methods employed. Active and passive motion can be started as soon as pain and tenderness subside. If the infection proceeds to joint destruction, ankylosis should be in the most desirable position.

Of course, the primary focus of infection should be eliminated as much as possible. The difficulty of diagnosing a septic venous thrombosis in the presence of two known sources of infection, ear and joint, is apparent. The question of opening the lateral sinus and jugular ligation should rest on the blood culture, plus the appearance of the lateral sinus at operation.

Frequent blood transfusions are of great importance. Chemo- and sero-therapy are of value, depending upon the offending organism.

CASE REPORT

Patient, young man, age twenty-three, entered the hospital February 19, 1937. History of acute otitis media with myringotomy performed three weeks before. Because of increase in auricular pain, elevation of temperature to 101°, and profuse otorrhea, mastoidectomy was advised and performed the day of admission. A pneumatic mastoid was found with cells partly broken down and filled with pus and granulation tissue. The sinus plate was intact. The post-operative course was uneventful until the third day, when the temperature suddenly rose to 104° and the patient complained of pain in the right knee and left elbow. The knee became red, swollen

and very painful. X-ray of the knee was negative. Aspiration of three c.c. of clear fluid was cultured and found to be Type VIII pneumococcus, similar to the pneumococcus cultured from the mastoid. The leg was immobilized in a posterior splint and heat applied. A transfusion was given. Sulfanilamide was tried over a period of time with no apparent result. The temperature remained between 103° and 104° and the white blood cells between 20,000 and 32,000. Repeated blood cultures were negative. Two additional transfusions were given. The otorrhea ceased several days after the operation; the post-auricular wound healed surprisingly promptly. X-rays three weeks later showed haziness of the joint outlines and considerable destruction about the external condyle. The temperature gradually subsided until forty-nine days later when the joint was incised and pus evacuated. The culture of this pus was reported as hemolytic streptococcus and stapyhlococcus. The patient was discharged six days later. Physio-therapeutic treatment was instituted with a gradual improvement in the joint disability, until at the present time only a slight limp is present.

A case of otogenic acute suppurative arthritis is reported. Otologists should be familiar with this complication to aid in its early diagnosis and prompt treatment.

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ACUTE ARSENIC POISONING.*

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I wish to treat this subject to point out the difficulty at times of making the diagnosis, and to provoke discussion that will prove of value to all.

DEFINITION

Acute arsenic poisoning occurs from the ingestion of large amounts of arsenic within a short period of time or ingestion of small amounts of the drug by persons who have an idiosyncrasy to arsenic.

SOURCES OF POISONING

Poisoning may come from the ingestion of arsenic trioxide (which is the form most frequently used in medicine), Paris green, Scheeles' green, fly paper and fly powder, rat poison; from the use of cosmetics, and from the use of arsenic plasters applied to skin cancers; from the inhalation of the fumes of arsenic in chemical laboratories, etc.

PATHOLOGY

Probably the most pronounced immediate effect of arsenic is its direct effect upon the capillaries, generally, lowering their tonicity, even to the point of and including paralysis. This is particularly true in the gastrointestinal mucosa where the dilated capillaries, with their markedly increased permeability, allow large amounts of fluid to escape with the production of a watery diarrhea and the resultant dislodging of superficial layers of mucus membrane which appear as shreds in the stools. The swelling, hemorrhage, diphtheritic inflammation with ulceration of the gastrointestinal mucosa is made worse by the re-excretion of absorbed arsenic through the mucosa.

The effect of arsenic on the nerves is at first a stimulating one. Though the biochemical changes are poorly understood, it is believed that arsenic has an affinity for the lipoid substance covering peripheral nerve fibers, with consequential nerve changes on continued stimulation, which are those of a peripheral neuritis and lead to degeneration and loss of nerve function. When large amounts of arsenic are taken, there is a sudden stimulation with less inflammation than in chronic poisoning, followed by a secondary depression or paralysis of function coming on more rapidly than that following inflammation. The sensory nerves are affected first, then the motor nerves. Occasionally the cranial nerves are involved. The most frequent and the most important one to be involved is the optic nerve with resultant varying changes in vision.

In fatal cases respiration ceases before cardiac ar-

*Read before the Southwestern Virginia Medical Society, at Blacksburg, Va., September 22, 1938.

rest occurs, but it is not definitely known whether the effect is a depression of the respiratory center in the medulla or an effect of the circulatory change. The heart is affected in both its muscle and nerve supply.

There seems to be a direct effect of arsenic upon the cells of the tissues of the body generally, the liver, kidneys, spleen, intestines, muscles, skin being chiefly affected and named in order of severity. The cells exhibit a fatty degeneration.

Metabolism of nitrogen is markedly increased, as evidenced by the increase of nitrogen in the urine. The glycogen store in the liver is depleted, with a diminished alkalinity of the blood resulting from the by-products of glycogen.

Absorption and Elimination

Inorganic arsenic, and organic not so promptly, is absorbed rapidly, whatever its mode of administration, and is gradually eliminated in the urine, feces, sweat, shedding epithelium, and in milk of nursing mothers.

The minimum lethal dose has been variously stated as being from one and one-half to ten grains, though recovery has been reported after ingestion of amounts up to two ounces.

Symptoms

The symptoms of acute arsenic poisoning begin with a sweetish, metallic taste and a sensation of heat in the mouth and throat, usually very promptly after the ingestion of the arsenic, to be followed, usually in one-half to three-fourths hour, by dysphagia, burning pain in the esophagus and stomach, and nausea. Later the pain increases, vomiting occurs, and a profuse watery diarrhea sets in. Blood may occur in both vomitus and stools, but more characteristic of the stools after the diarrhea persists for a short time is the presence of shreds of intestinal mucous membrane together with serous fluid coming from the very permeable gastrointestinal capillaries which may be paralyzed. These stools have the appearance of the so-called rice water stools of Asiatic cholera. The rapid loss of fluid induces an excessive thirst; the skin becomes pale and cold; the urine becomes scanty or suppressed, frequently albuminous. Headache, giddiness, chilliness, fever, cough, cramps in the abdomen and limbs make their appearance. Most toxic cases show collapse, with a rapid, feeble pulse, dyspnea, enfeeblement of the heart muscle, coma, and sometimes convulsions precede death. Collapse may come early from direct effect on heart and brain, with little pain or gastrointestinal symptoms. Fatal cases have occurred as early as twenty minutes, but usually survive ten to forty-eight hours, though may live for a week or longer, ending by circulatory failure, as evidenced by edema, pronounced and persistent fall in blood pressure, cyanosis and cramps, followed by coma, convulsions, and death. Some cases manifest nervous excitation, restlessness and delirium, while others present sleep and coma as the chief symptoms.

In non-fatal cases there are delayed symptoms of anorexia, digestive disturbances, conjunctival irritation, swelling of eyelids, sensory changes characterized by hyperesthesia, formication, paresthesia, pain in extremities, acne-like eruption, falling hair, loss of fingernails, motor paralysis with muscular atrophy, and contractures.

Diagnosis

The chief condition to be excluded in the differential diagnosis is Asiatic cholera, which may practically be ruled out where no epidemic is known to exist. In cholera morbus the dejecta is less likely to contain shreds of mucous membrane and blood than in arsenic poisoning and the pain is usually more severe in the latter. Strong acids and alkalis leave corrosive evidence and the rapid onset in arsenic poisoning will distinguish it from poisoning by lead or mercury.

Treatment

The first efforts at treatment should consist of repeated gavages with the aid of a stomach tube or emetics and the official U. S. P. Ferri hydroxidum with magnesii oxidum administered every fifteen minutes in ounce doses until four to six doses have been given (prepared by mixing forty cc. liquor ferri tersulphatis with 125 cc. water. Rub ten grams magnesium oxide with water to a thin mixture, add enough water to make 750 cc. and add gradually to the ferric sulphate while shaking). This should be evacuated from the stomach in a short while and a castor oil or saline purge given. Solutions of iron salts, such as tincture of ferric chloride, Monsel's solution, etc., together with magnesium carbonate or sodium carbonate, or any alkali, may be used. Sodium thiosulphate, intravenously in seven and one-half grain doses, or thirty grains orally, has been used, but some investigators are unable to confirm its usefulness. Milk and chalk powder after lavage has been successfully used. Opium to check vomiting and diarrhea, saline hypodermoclysis to make up

for the fluid lost and stimulate elimination by way of the kidneys, demulcent drinks and bismuth to soothe the inflamed mucous membranes, and stimulants such as digitalis, caffeine, strychnine, and external heat in collapse. In non-fatal cases massage, electrical treatments, hot baths, sodium salicylate and potassium iodide are useful in the reestablishment of nerve and muscle function and to prevent atrophy.

I wish to report the following ten cases of arsenic poisoning that have occurred in my practice.

J. A., aged seventy-three; I. A., his wife, aged thirty-nine, and their children, M. A., age twelve, L. A., age ten, C. A., age nine, and R. A., age eight; and Mrs. A's brother, age thirty-six, had lunch about 12:30 P. M., April 7, 1938, and partook of boiled Irish potatoes, cooked the night before, boiled Pinto beans, cooked before lunch in water brought from the spring that morning, head lettuce bought from a chain store, butter, preserves, corn bread, sweetmilk and buttermilk. The beans were seasoned with a ham bone. Between the hours of 3 and 4 P. M. (two and one-half to three and one-half hours lapsed time) all patients began to have a burning type of pain in the throat and esophagus, with nausea and vomiting occurring in a very few minutes. No hemoptysis. Headache, dizziness and chilliness made their appearance along with the above symptoms. Abdominal cramps and pains in the limbs came on a short time after the appearance of the vomiting. The vomiting and abdominal pain continued at intervals over a period of sixteen days in most of the patients. The cause of this was primarily due to the daily consumption of small amounts of the arsenic for the first twelve days. Photophobia, minor disturbances of vision, slight conjunctivitis, edema of eyelids and face was present rather early in all patients. The temperature ranged from ninety-nine to 103.8 F. The pains in the limbs gradually grew worse; areas of anesthesia developed on legs; in some, the loss of joint sense occurred. Weakness developed in all muscle groups of upper and lower extremities of all patients and progressed in three to four weeks to a paralysis of extensor groups of muscles in arms, forearms, and thighs, flexor groups in legs, and extensor groups to toes, with muscle atrophy and contractures following the paralysis, in all patients except J. A. (father), I. A. (mother), and H. G. (neighbor).

G. M., age seventeen, and J. M., age fifteen, two other children, came in from school and partook of the same food as the others between 4:30 and 5:00 P. M. and between 8:00 and 9:00 P. M. developed the same symptoms and in the same sequence as described above. J. M. was the only case to develop weakness of the muscles in the lumbar area of the back.

H. G., age twenty-five, a neighbor, ate biscuit, ham (same as that cooked with the beans above), and drank coffee on the second day after the onset of illness in the others and developed dizziness, nausea, vomiting, abdominal pains, and slight numbness of both feet. These symptoms cleared up in a few days without treatment or any sequelae.

After cessation of the vomiting patients experienced a loss of appetite, gaseous indigestion, varying degrees of constipation, and a spasmodic cough developed with numerous large moist rales throughout both lungs. The abdominal pains began to improve as soon as the vomiting ceased. The neuritic pains gradually grew worse for six weeks after onset and have been present at intervals since. The first definite improvement began about nine weeks ago, with rather marked improvement in the past five weeks.

Nosebleed occurred in L. A. and R. A.

All experienced some loss of hair. L. A. had a severe dermatitis beginning three weeks after onset of illness, with a macular rash which soon became pustular in centers and finally ulcerated over large areas of buttocks, flanks, shoulders and back of head where all of hair came out. This is returning. It required nearly four weeks for complete healing.

Representative of blood findings is that of R. A. who had a RBC of 1,961,000; WBC of 4,250; polys 76 per cent; Hb. 71 (Dare). at this time, September 21, 1938, the RBC was 3, 541,000, white BC 5,450. Hb. 81 (Sahli).

All specimens of urine showed a specific gravity ranging from 1.008 to 1.016, cloudy, albuminous, with occasional hyaline cast. The urinary findings are negative at this time.

Treatment consisted of bismuth and purgation at first. Lavage was unnecessary as the stomach was relieving itself of everything placed in it as rapidly as possible. Citrocarbonate was given to alkalize the urine. Codeine with acetyl-salicylic acid compound by capsule was given for relief of the pain; tolu and dionin for cough; salicionyl, sodium salicylate, and heat for the neuritis. Heat (dry), steam baths, and massage were used for muscle atrophy and contractures; alcohol and ammoniated mercury (10 per

cent) for the dermatitis. Five weeks ago I began using vitamin B_1, 800 international units per day, in the treatment of the neuritis.

The salient feature of these cases is the absence of a diarrhea.

It is my belief that the use of vitamin B_1 has a definite place in the treatment of toxic neuritis from metal poisoning, as evidenced by the rather prompt improvement of neuritic pains after the administration of vitamin B_1 had been in progress only a few days.

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SNARES AND PITFALLS IN MEDICINE AS SHOWN IN THE REVIEW OF THREE CASES: BRILLIANT RESULTS AND CURES IN MODERN MEDICINE AS IN TWO CASES.*

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"One bright sunny afternoon when the nineteenth century was hovering over the Beardsley period, two middle-aged men were strolling along Bayswater High Street, London. One of them, midway between fifty and sixty, was called George Louis Palmella Busson du Maurier. The other, nine years younger than his companion, inscribed himself simply Henry James.

"du Maurier was an artist on the staff of *Punch*. James was a novelist. Henry said to George, 'I would like to write a novel, but plots are hard to find.' "

" 'Plots,' jested the *Punch* artist, 'I am full of plots!' "

Thereupon he told his friend the story of a Scotch-Irish model of the Quartier Latin who had lovely feet but was utterly tone-deaf, and who was converted into a magnificent *prima donna* by a sinister but capable Oriental mesmerist. Some attractive Britons—art students—entered into the picture, and there were large ingredients of love interests, studio life, psychoanalysis ahead of time, and enough other related complications to delight any seeker after plots.

"But you ought to write that story," declared James to du Maurier at the conclusion of the scenario.

"I can't write," replied du Maurier. "I have never written. If you like the plot so much, you may take it."

The gift was too valuable to accept, James demurred. The enthusiasm that James had shown instantly kindled a fire in du Maurier that the latter on reaching home, pulled off his coat, sat down and wrote until far in the morning and completed two installments of his first novel. This took most of the night, and the novel was not "Trilby," and had nothing to do with a Scotch-Irish model, or a sinister mesmerist. The story was called "Peter Ibbetson."

Almost at the same time two teachers of medicine were divagating one afternoon in Prospect Park, Philadelphia. They were discussing medical teaching, and especially the medical curricula for the coming session. The elder and larger of the two gentlemen was telling his companion freely what he thought. It was well known among this gentleman's friends that he had nothing in common with a person who was easily convinced. His reputation was for firmness and stability. During my youth there was an Episcopal Bishop who preached in a church near my home who bore the same reputation. In short, this medical teacher, William Pepper, was a fundamentalist. It was his habit to punctuate what he was trying to convey by using pertinent quotations. In answering the sum of questions, from his companion, he said, "By this path, youthful intelligence invariably passes, incredulous of snare and pitfall where lie the bones of many a savant under magic blossoms, nourished by creeds long dead."

"The younger man was a Celt in appearance, of a very dark, almost olive complexion, with a rather long, drooping black mustache—a Celt in his charming vivacity and brilliancy, and in his sparkling wit. He rarely expressed his opinion, but was rather given to asking questions. He had in his mind the cause

*Read before the Norfolk County Medical Society, February 24, 1938.

of disease, at that time so rarely known—research work, an unexhibited, and, therefore, untried curriculum. As a teacher, William Osler was wholly simple and devoid of circumstance or the least attempt at studied eloquence or theatrical effect. He taught mainly by the bedside. His alert eye missed little. His few, kindly, often droll words gained the early confidence of the patient, and kept the student on his tip-toes. His talks in the ward were replete with epigrams. The right adjective, often quaint and unusual, was always on the tip of the tongue, and to a rare degree he possessed the power to inspire in patient confidence, courage, and hope; in student, enthusiasm. The equanimity that he preached, he exemplified—nothing perturbed him."

A few weeks went by after his walk through Prospect Park in October, 1888, when he was visited by a delegation from a not distant city and was offered the chair of medicine in a university which was growing in recognition and fame. In its connection a large modern hospital was nearing completion, nearly ready to receive patients. This dynamic man left the University of Pennsylvania where he had been called in 1884 as Professor of Clinical Medicine and in due time accepted the call as Professor of Medicine at the Johns Hopkins University, and Physician-in-Chief to the Johns Hopkins Hospital. But the medical school was delayed in its opening for over two years because of lack of funds. During this time he became restless, and he, too, pulled off his coat and wrote a new practice of medicine. In 1892, he published his treatise on "The Principles and Practice of Medicine," which, largely because of its personal quality, because it represented the fruits of actual observations and experience, has been, for so many years, the standard textbook of medicine in the principal universities all over the world. It turned the Austin Flint Book of Medicine bottom side upward.

After graduating in medicine the summer of 1893, I was made Surgeon in charge of the Presbyterian Hospital, in Baltimore, Maryland. One Sunday afternoon while walking with a prominent surgeon's granddaughter, she said to me, "Do you know that Dr. Osler is going to give his first bedside clinic tomorrow?"

I said, "No," but when I went home I arranged my duties so that I went to the Johns Hopkins Hospital the next morning and at the door I was told by the colored doorman that he did not know where Dr. Osler was keeping his clinic. While hanging up my hat and coat, a middle-aged gentleman, displaying a very heavy black mustache, who was wearing an Oxford Prince Albert coat came to hang his coat and hat at the same place and I said to him, "Do you know where Dr. Osler is giving his bedside clinic this morning?"

He said, "Yes, I will show you."

While walking down the corridor this man put his arm around my shoulders, something that would have hardly occurred with anyone of the thirteen pillars at the school of the university where I had just graduated. As we turned the corner and passed several wards, he turned in the ward where his assistant and nurses stood by a bed ready for the lecture. The bed sheet was pulled down, and the man's shirt was pulled up and in his search for rose spots, he raised up and said, "Gentlemen, this is not a case of typhoid fever: this is a cast of syphilis." And during the clinic, he said, "Gentlemen, when you know syphilis, you know all medicine." This pertinent phrase went around the world.

Thirteen years went by after he began to teach at the Johns Hopkins University and he was visited by another delegation. This time he was offered the position as head of medicine of the United Kingdom of Great Britain and Ireland. A few days before he left to take up his new work, he addressed a graduating class of young men emphasizing the necessity of making good in their youth. He, too, was given to using quotations, and especially when it came to arousing enthusiasm in young students. Dr. Osler in his speech at the Commemoration Day Celebration at Johns Hopkins University of February 22, 1905, said he had two fixed ideas:

"The first is the comparative uselessness of men above forty years of age. The effective, moving, vitalizing work of the world is done between the ages of twenty-five and forty—these fifteen golden years of plenty. . . . My second fixed idea is the uselessness of men above sixty years of age and the incalculable benefit it would be in commercial, political and in professional life, if, as matter of course, men stopped work at this age. . . . In that charming novel, 'The Fixed Period,' Anthony Trollope discussed the practical advantages in modern life of a return to this ancient usage, and the plot hinges upon the admirable scheme of a college into which at sixty men retired for a year of contemplation before a peaceful departure by chloroform. . . . The teacher's life should have three periods—study until twenty-five, investigation until forty, profession until sixty, at which age I would have him retired on a double allowance. Whether Anthony Trollope's suggestion of a college and chloroform should be carried out or not I have

become a little dubious as my own time is getting so short. . . ."

This quotation, as it appeared in the paper, but not as quoted by Dr. Osler, is now familiar to the laity as well as to doctors. The morning after Dr. Osler made this address, the headlines in the newspaper on the subject of his address carried the suggestion that was appropriated by the employer business man throughout the country, and in due time the elderly employee had reason to feel that Dr. Osler's remarks were a source of his impending calamity. Notwithstanding Dr. Osler's interest in young men, their progress and accomplishment, if he had had the slightest intimation how the business world felt towards the old, experienced employees and the use of these remarks as a beginning elderly man's purge, he would have refrained from using quotations or any part of the theme suggested by Anthony Trollope. Dr. Osler was wholeheartedly interested in mankind, and above all, the dependable, elderly working man.

As time has gone by, I find myself weighing the prescient power of each of those men's minds who were promenading in Prospect Park, and I am convinced that Dr. William Pepper, a finished gentleman, was right in some of his dogmas, but was wrong in others, while Dr. William Osler, who was such a friend to all and to me, unintentionally influenced, I believe, his students who became professors to see the scientific side of their relation to their patient and to treat him accordingly, instead of the old method of considering the patient first, as he himself exemplified.

Shortly after attending the bedside clinics of Dr. Osler, I was in Norfolk, and heard a sermon by a young divine at St. Paul's Church, the theme of which was, "Do not take away the bad until you have the good to put in its place." The text was from Christ's parable about the unclean spirit going out of a man and coming back with seven other spirits and finding the man's life empty. Christ's comment on it was that the last state of that man is worse than the first. The parable is found in St. Matthew, Chapter 12: verses 43-45. Over forty years have gone by; that young divine was Henry St. George Tucker, now Bishop of Virginia, and Presiding Bishop of the Episcopal Church of the United States.

THREE CASES THAT HAVE TO DO WITH SNARES AND PITFALLS

Case I. Mrs. A. J., aged sixty-eight years, consulted me on May 17, 1899. History as follows: Eyes paining for two months, and failing vision. Headaches have been very bad, but are waning. Vision in the right eye is 15/200. The eye was seemingly free from gross pathology. The tension by palpation, found near normal, probably slightly increased. Vision in the left eye was 15/50. The tension was plus 1. The conjunctiva was slightly injected. Otherwise the eye was normal in appearance. Diagnosis of glaucoma simplex was made.

Treatment was begun immediately. Instillation in the eye, alternating with hydrobromide of pilocarpine, and sulphate of eserine. Both eyes responded favorably to this treatment, and by May 30, the vision in the left eye was 15/20.

Incidently Mrs. A. J. spent part of her time in Norfolk, and part of her time with her sister in New York. She requested me to give her a letter to Dr. G. in New York. She consulted Dr. G. and he had his nurse instill drops in her eyes for further examination with the ophthalmoscope. The electric ophthalmoscope had just come into vogue. When she returned next morning, the sight in both eyes was much reduced. Dr. G. felt it wise to operate at once, doing an iridectomy on each eye. The vision only partially returned after operation. My records show that Mrs. A. J. consulted me again on November 6, 1899. The vision in the right eye was 1/200, and the vision in the left eye was barely 10/200. There was no further improvement in the vision in either eye. She only had sufficient vision to go from room to room in her home, where she was perfectly familiar. She died in February, 1907, and never became totally blind.

Case II. Mr. J. P. W., aged fifty-six, consulted me on May 22, 1924. History as follows: The first of the year he woke up one morning with severe vomiting spells. Later on he became very dizzy and deaf in the right ear. He was dizzy for five or six weeks. At the end of this time he thought he was getting better when suddenly he noticed that he had double vision. He was then unable to walk for the constant vertigo. He wrote to me for an appointment, and my secretary wrote him that I had just left the city and would not be back for six weeks. He went to Johns Hopkins Hospital where he remained for six weeks. He had numerous blood

examinations, which were negative for syphilis. At the end of six weeks, I returned home, and when I was entering my office he was brought in. He was told he would have to remain several days to arrive at any decision in his case. Blood was taken and sent to three laboratories, and all reported negative. On the third day I told him that his name sounded familiar. He said that his daughter had consulted me and was successfully treated for eye trouble three years ago, and that was why he was seeking my advice. The secretary speedily found her chart and the findings were that she had well marked Hutchinson's teeth and interstitial keratitis and choroiditis. Hutchinson's teeth, together with interstitial keraitis were responsible for a diagnosis of inherited syphilis. This twelve-year-old child had active treatment for a number of months and responded to the anti-syphilitic treatment. On the third day this gentleman, Mr. W., was told there was no necessity for him to give up his business and go home and fade out. He was encouraged to follow a treatment which might be of great benefit to him. It was thought that his double vision would probably disappear within a few months, and his vertigo would also yield to the treatment. Mr. J. P. W. responded to the anti-syphilitic treatment, kept his office force, and in eight months he was able to resume his work in a normal way. Beware of negative Wassermann tests in old, long-standing cases.

Case III. Mrs. M. C. B., aged thirty-six, consulted me April 6, 1936, giving the following history: She noticed some trouble with her eyes one week ago, the right much worse than the left. At this time, the right is totally blind for objects; only sees the light. At first there was some pain about the eyes. But this did not last long. Has no headaches, but is nervous. Right eye vision: Large objects are not made out. Lids and conjunctiva negative. Tension normal. Cornea clear. Pupil normal. Iris active to light. Lens clear. Vitreous clear. There is marked papillo edema or so-called choked disc.

The vision in the left eye is 20/30. Lids and conjunctiva negative. Cornea clear. Pupil normal. Tension normal. Iris active to light. Vitreous clear. There is papillo edema, but not so marked as the right eye. There are no hemorrhages in the retina. Blood was sent to three laboratories; all reported negative.

Notwithstanding negative skin lesions, enlarged glands or other evidences of syphilis, she was given energetic anti-syphilitic treatment.

At the next visit, the papillo edema had increased, and she was greatly alarmed, feeling that the vision in the left eye was rapidly disappearing. Fearing a brain tumor, I immediately got in touch with Dr. Walter E. Dandy at the Johns Hopkins Hospital, and he kindly consented to see the patient the next day, which he did, and she stayed under his observation for ten days. With Dr. Dandy's permission, I incorporate his findings in his letters to me at the time when she was under his care, and a later communication to me concerning the case:

MAY 4, 1936.

DEAR DOCTOR DRIVER:

Mrs. B. has papillo edema without intracranial pressure. It is optic neuritis with a syphilitic origin. She has a positive Wassermann in the blood and spinal fluid. Usually in these cases of optic neuritis with loss of vision one is not so fortunate in picking up the syphilitic etiology, but I should feel that in view of the positive Wassermann that there could be no doubt that this is the causative factor. She will return to you very shortly.

Yours very truly,

Signed: DR. WALTER E. DANDY.

He then returned her to me, saying she had a positive reaction for syphilis. She had anti-syphilitic treatment. The papillo edema disappeared. She regained completely the sight in each eye.

After a personal interview with Dr. Dandy about this case, I received the following letter from him:

APRIL 22, 1938.

DEAR DOCTOR DRIVER:

With Mrs. B.'s papillo edema, of course, the presumption was that she had a brain tumor, but this is only a presumption because other lesions give it. An air injection was made into the brain and the ventricles were normal. This unequivocally excludes a brain tumor, and means that she has an optic neuritis. Since she had a positive Wassermann the presumption is the changes in the eyegrounds were due to syphilis, although it may well be entirely independent of the syphilis. It is a condition which is quite common without the existence of syphilis. The fact that her condition has cleared under syphilitic treatments does not necessarily mean that it is syphilitic; it may just be a normal course of events in a non-syphilitic neuritis.

I am now reporting a series of about thirty such cases, and she is, I think, the only one with syphilis. They all cleared spontaneously in the course of a few months.

Yours very truly,

Signed: DR. WALTER E. DANDY.

TWO CASES THAT HAVE TO DO WITH BRILLIANT RESULTS AND CURES IN MODERN MEDICINE

Case IV. Mrs. M. B., aged forty-seven years, consulted me January 12, 1938, with the following history: She had been married twenty years. Has no

children. Two years ago while walking home from work at the mill where she was employed as inspector of stockings, vision became blurred in both eyes, right eye worse, and has continued to grow worse, until now she can only see light with right eye, and does not recognize large objects with left. No pains in the eyes. She has always been a large woman.

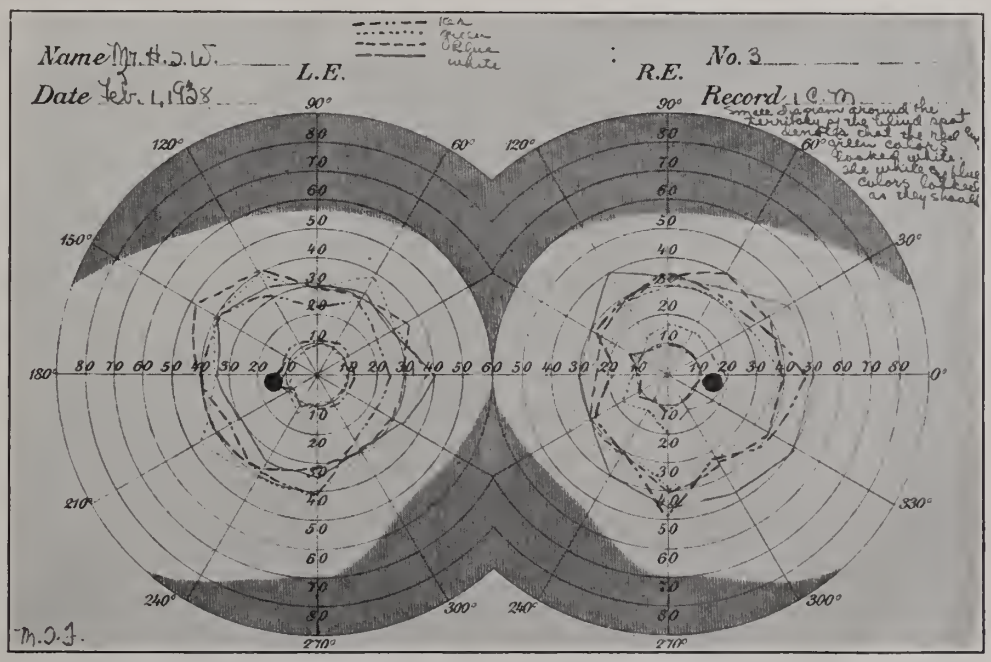
Findings.—Right eye: Vision, light perception, does not count fingers or recognize objects. Lids and conjunctiva negative. Tension normal. Extra-ocular muscles negative. Cornea clear. Pupil irregular in shape, and has fringe on edge of iris and is adherent to the anterior surface of the capsule of the lens. Pupil is two and one-half mm. in diameter and does not react to light. Lens is clear. Vitreous clear. There is an enormous amount of white deposit in the retina. Outlines of optic nerve are not distinct.

Left eye: Vision—Sees the movement of the hand at six inches. Lids and conjunctiva negative. Extra-ocular muscles negative. Tension normal. Cornea clear. Pupil is 3 mm. in diameter. Iris does not react to light. Lens clear. Vitreous clear. There is an enormous amount of white deposit in the retina, obstructing the view of the blood vessels. The outline of the optic nerve is clear. The few blood vessels that are seen are small, much smaller than normal. This condition made me suspect Diabetes, and I said as much to her. She answered me, "Doctor, I had Diabetes five years ago. I was cured! I have the syringe at home the doctor gave me to use." A specimen of the urine showed large amounts of sugar, we thought as much as 6 per cent. She was given a prescription for a new syringe, and insulin. After three weeks' treatment she could see to walk in my office.

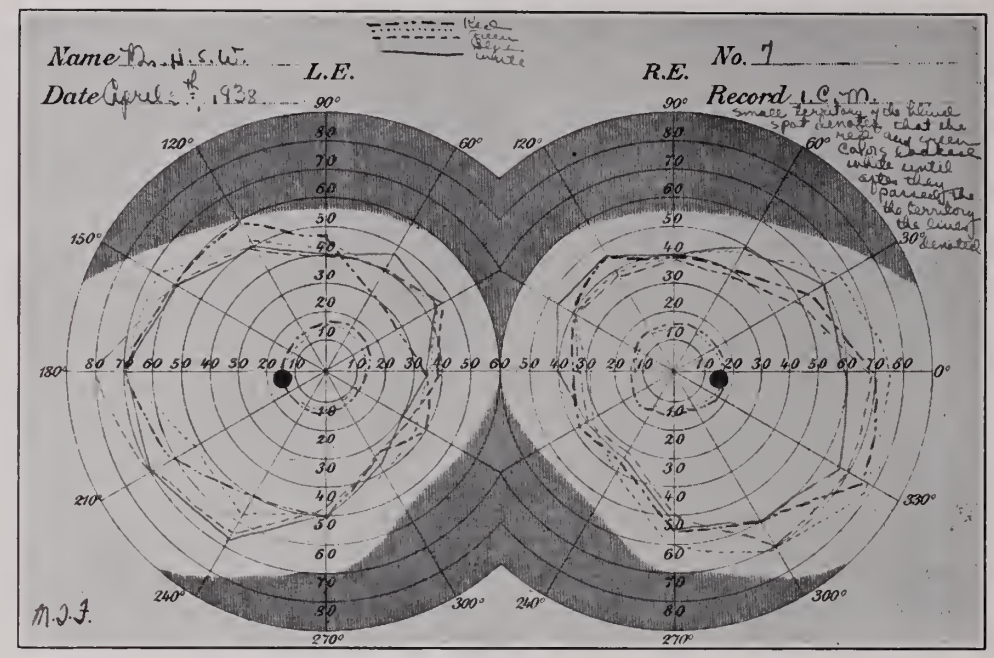
If Mrs. M. B. had thoroughly understood that the disease for which the doctor was treating her was only relieved by the use of insulin and that the insulin had to be continued, I do not believe she would have had the severe changes in her eyes.

Case V. Mr. H. S. W., aged thirty-seven years, consulted me about his eyes on May 18, 1936. History as follows: The eyes pained and began to trouble him one year ago. They burned and ran water. The sight has failed rapidly and after five months he could not see to read large print and could not recognize large objects. His doctor had been treating him for syphilis, but was not sure whether his condition was syphilitic or not. Wassermann test showed +3 examination. At this time he has stopped drinking whiskey, but is drinking beer. My findings were:

Right eye—vision, 15/200, but this is not central vision. The eye had to be turned well toward one side and upward. Lids and conjunctiva negative. Extra-ocular muscles negative. Tension normal.



Mr. H. S. W., February 1, 1938. Small diagram around the territory of the blind spot denotes that the red and green colors looked white. The white and blue colors looked as they should.
Explanation: Red: Two dots and two dashes. Green: Dots. Blue: Dashes. White: Continued line.



Mr. H. S. W., April 5, 1938. Small territory of the blind spot denotes that the red and green colors looked white until after they passed the territory the lines denoted.

Cornea clear. Pupil normal. Iris active to light. Lens clear. Vitreous clear. Retina, choroid and optic nerve show no visible change. No inflammatory deposits in the retina.

Left eye—vision 15/200. Central vision was negative. Had to turn the eye end up to see 15/200 well toward one side. Lids negative. Slight conjunctivitis. Extra-ocular muscles negative. Tension normal. Cornea clear. Pupil normal. Iris active to light. Lens clear. Vitreous clear. Retina, choroid and optic nerve show no pathology. He was then given very active syphilitic treatment of the heavy metallic salts and this was continued from the last of May through November. His health seemed to improve, but there was not the slightest improvement in his vision. I then said to his wife that I did not believe he had given me a true story of his case, that I believed that he was a very heavy smoker and drinker. The answer was, "Doctor, how did you find that out?"

Fields of vision were mapped out on the first day, and were made in intervals as shown in the figures. You will observe by the maps of the field of vision that his peripheral vision was good. It was the central vision where green and red looked white, and he had almost a complete central scotoma in each eye. At this stage, I sought the advice of Dr. Alan C. Woods, of the Johns Hopkins Hospital. He was kind enough to take this case under his care; to examine him, his wife, and child carefully for syphilis, and all the tests proved negative. He then sent him back to me and wrote a letter, which he has given me the permission to use in this report:

BALTIMORE, MARYLAND.
JANUARY 29, 1937.

DEAR DOCTOR DRIVER:

Mr. H. S. W. came to Baltimore last Monday. On his admission to the hospital he gave a history of gradual impairment of vision, beginning about fifteen months ago. In his previous history there was apparently nothing of any marked importance except the fact that he has been a heavy drinker all his life, and prior to the onset of his trouble he had been drinking heavily—taking nearly a quart of cheap whiskey a day. He had had various antisyphilitic treatment before he arrived in Baltimore.

Examination of his eyes showed them negative externally, with normal tension, pupillary reactions and extra-ocular movements. Ophthalmoscopic examination showed clear mediae. The discs were flat. In the right eye there was definite pallor of the nervehead, especially marked in the area of the papillo-macular bundle. Peripheral fundus was negative. The left eye presented a picture comparable to that in the right eye. Slit lamp examination was negative. His vision was limited to 5/200 in both eyes. The visual fields showed normal peripheral fields for white and color, but with an absolute central scotoma in each eye. In the right eye this was separated from the normal blind spot but in the left eye was continuous with the blind spot, with a small island paracentral vision.

The general physical examination was entirely negative, except for hyperactive reflexes. Examination of the teeth showed some pyorrhea and need of a little prophylactic treatment, but no evidence of periapical infection. The nose, throat, and accessory nasal sinuses were entirely negative throughout. Stereo picture of his head was entirely normal. Basal metabolic rate was normal. Blood chemistry was normal throughout. Blood pressure was normal. Hemocytology was normal throughout. Urine was negative. Blood Wassermann of wife was negative. Spinal fluid was entirely negative under 140 mm. pressure, with four cells, negative Pandy, mastic, and Wassermann reactions. Special neurological examination was entirely negative. Genito-urinary examination was negative and gonococcus complement fixation test was likewise negative.

In short, we have a man who has a history of gradual loss of vision, following excessive alcoholic intake, who has every evidence of a retrobulbar involvement of the nerves, with manifest atrophy now appearing affecting especially the papillo-macular bundle. In the right eye the scotoma is not typical, but in the left eye it has every characteristic of a toxic amblyopia. I felt there was little doubt as to the final diagnosis of a toxic amblyopia from alcohol or possibly tobacco. The question is as to what can be done. In acute cases of this condition, many favorable results have been reported by the intravenous use of nitroskleran. Whether or not it would have any beneficial effects in a case as far advanced as this I think is highly problematical, but in view of the recent work I think we might give him a course of nitroskleran and see that he receives a well-balanced diet with a high vitamin content. There is, unfortunately, nothing else that I can suggest. I think we can safely dismiss the possibility of syphilis or intracranial tumor. . . .

Very sincerely yours,

Signed: ALAN C. WOODS, M. D.

After having this suggestion, I ordered from E. Tosse & Company nitroskleran and began to use it. His sight did not improve at first, but after he had completed twenty-six doses, there began to be an improvement in the central vision, and when he was last seen the vision was 20/15 in each eye. The central scotoma for red and green had nearly disappeared.

Since nitroskleran is a proprietary compound, made by E. Tosse & Company, I think its composition should be stated here:

The composition of nitroskleran is 0.6 per cent of sodium chloride; 0.36 per cent of disodium phosphate; 0.2 per cent of di-potassium phosphate; and, 10 per cent of sodium nitrite.

But before this compound of nitroskleran was used, sodium nitrite was used, and likewise its composition should be stated:

It consists of a 2 to 4 per cent solution of sodium nitrite, to which physiologic solution of sodium chloride and alkaline phosphates are added, and further refined by Tosse & Company, and marketed as nitroskleran.

In alcoholic amblyopia characterized by a central scotoma, there was in this case no visible change that I could make out, and it is that form of amblyopia due to ethyl (grain) alcohol. In wood alcohol blindness there is right at once a very decided change in the appearance of the optic nerve. The whiteness takes on a bluish tint, very characteristic and permanent.

SUMMARY

1. Where there is no known specific for a disease which you are called on to treat, it should be treated empirically and due consideration had for the temperament and constitution of the patient.

2. When a mydriatic has been instilled in the eyes for an ophthalmoscopic examination, the person should not leave the office with dilated pupils unless it is a very young person; never after they have reached an age when there is a possibility of an unsuspected glaucoma simplex.

3. Negative serological tests are quite common in long-standing syphilis—some serologists say as much as 15 per cent; therefore, one should not be entirely satisfied even after several negative serological tests when there are signs and symptoms that cause him to suspect syphilis as the underlying factor.

4. Even when you have a positive serological test for syphilis, the manifest condition for which you are being consulted can be non-syphilitic in its nature. The papillo edema case here reported is a good example.

5. The physician visualizes thoroughly what has happened in a diabetic patient; but I doubt if many diabetic patients, after a thorough explanation of their case, have a clear conception and can quite understand why they should continue the rest of their life to use insulin. It is, therefore, necessary that the diabetic should be checked from time to time.

6. A complete history is most valuable. Many times, though, a part of the history is withheld, which would throw valuable light on the case. Night drinkers and indulgers in cologne and other alcoholic non-beverages are found in all walks of life. A physician has no right to be startled at a sclerotic liver, or an alcoholic toxic amblyopia.

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339 Boush Street.

CARE AND FEEDING OF THE NEWBORN AND THE PREMATURE FROM THE PEDIATRIC VIEWPOINT.*

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The word "newborn" is a term used to cover the first several weeks of the infant's life. Under present conditions of practice the infant frequently does not come under the care of the pediatrician until this period has passed. The obstetrician's chief concern is with the mother and so, during this important phase of the infant's life, he is apt to be given only secondary consideration. The pediatrician's chief interest is in the baby, and logically the baby should come under his care on the day of birth.

Although the high mortality of the first few days of the neonatal period probably has a direct relation to prenatal and natal conditions over which the pediatrician would have no control, nevertheless his efforts at this time should help much to reduce the postnatal factors contributory to this mortality.

For best cooperative results a pediatric appraisal of the baby should be made as soon as practicable after its birth. This appraisal should be based on a knowledge of prenatal and natal conditions as well as a thorough physical examination of the baby. Hereditary predisposition to certain ailments, or ill health of the mother during pregnancy as well as the circumstances of the actual delivery should be known and correlated with the physical examination.

NORMAL NEWBORN INFANTS

Assuming that the baby is normal at birth, three problems are to be met:

1. The strength and resources with which he is endowed must be conserved.

2. He must be protected from injury—mechanical or infectious.

3. He must be provided with nourishment on which he can live and grow.

In the conservation of his resources, the physiological adaptation to conditions of extra-uterine life must be kept in mind. While adjustments of the circulatory, respiratory and digestive systems are

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being made, it is important that favorable environmental conditions be provided. The unstable heat regulating mechanism must also be kept in mind, and the baby not be subjected to wide changes in room temperature. The upper respiratory tract should be cleared of mucus and, in certain cases of depression of the respiratory center, inhalations of CO_2 and O mixture may be needed.

The newborn is especially susceptible to infections of the skin and respiratory tract, and where these infections occur they may be attended by severe symptoms or even a fatal termination. Consequently, all possible precautions should be taken to guard against contact with any one who might be actively suffering from any infectious condition or a carrier of same.

The third problem to be met is that of providing the infant with proper food. Breast milk is the feeding of choice, but unfortunately many mothers do not have it, and others who could are unwilling to nurse their babies. It would seem that the obstetrician during the prenatal period might with the proper effort exert considerable influence toward making the mother willing to nurse her baby if she should prove to be physiologically capable of doing so. The cultivation of emotional stability as well as willingness in the mother would no doubt make it possible for many more babies to be breast-fed than is now the case. Next to inadequate mammary gland structure, the nervous condition of the mother probably more than anything else affects the secretion of milk.

If the breast milk is inadequate, complemental bottle food in some cases will enable the mother to continue breast feeding. However, if the breast milk is not sufficient to meet at least half of the infant's needs it is doubtful whether the benefit to be gained is sufficient to justify the double feeding. The strain from nursing plus the work of preparing the bottle food is apt to have a bad effect on the mother.

In the absence of breast milk, artificial feeding must be given. The requirements of a satisfactory artificial food are: 1. It must have sufficient calories; 2. it must contain adequate amounts of fat, carbohydrate, protein, mineral salts and vitamins; 3. it must be free from harmful bacteria; 4. it must be digestible. Meeting these requirements, mixtures of boiled whole milk, evaporated milk, acid milk and powdered milks, as well as a number of synthetic milk preparations have all been successfully used.

A strong vigorous baby will do well on any reasonably well constituted formula meeting the above requirements. However, differences in individual babies call for adaptation of the formula to the specific baby's needs. The newborn's digestive tract can be easily upset by persistently feeding him on a formula that is not in keeping with his digestive capacity. Overfeeding during the early days of life may be tolerated for a time and cause a rapid gain in weight at first, but persistence in this is liable to lead to acute or chronic digestive disturbance and bring the baby to the pediatrician for correction of trouble that could have been avoided if his services had been enlisted sooner.

The chief objection to the ready prepared proprietary infant foods is their lack of flexibility, and consequently the inability to adapt them to the needs of the individual baby. My own preference for the feeding of full term newborn infants is a lactic acid milk and water mixture prepared from boiled whole milk or evaporated milk, with the addition of carbohydrate in suitable amounts. In all cases the individual baby's needs and digestive capacity rather than a theoretical number of calories must be the determining factor in prescribing a formula. For the newborn it is a safe practice to start on a feeding somewhat below the theoretical optimum until his tolerance is known and then increase it as his appetite and digestive capacity indicate.

For the first forty-eight hours while physiological adjustments are being made, the baby's requirements for food can be met with 5 per cent lactose solution given at the regular feeding times starting when six to eight hours old. During this period he should be put to the breast at every other feeding to stimulate lactation and, at the end of forty-eight hours if breast milk is not adequate, artificial food should be offered after nursings, or in place of nursings later if there is not sufficient breast milk to justify continued attempts at breast feeding.

PREMATURE INFANTS

The management and feeding of premature babies presents difficulties that call for special professional skill and meticulous nursing care. Strictly speaking, prematurity should apply to all infants born prior to term. However, it is not always possible to determine the exact date of conception so an arbitrary standard of five and one-half pounds weight or 18.5 inches length has been set, and any infant falling short of these figures is for practical purposes con-

sidered a premature baby. The need for special care and the chances of survival of such infants depends as much on the degree of immaturity as on prematurity. Hess speaks of this entire group of infants as "Immature" and classifies them as follows:

1. Prematures without pathological changes and normal for their fetal age.

2. Prematures with pathological changes related to conditions in the parents, or constitutional defects and congenital malformations.

3. Full term but immature infants with pathologic changes.

Whatever the cause of the prematurity all of these infants are at a disadvantage because of their underdevelopment. Their heat regulating mechanism is less well developed than that of the mature newborn. They have a lessened capacity for generating heat as well as for giving it off and consequently body temperature tends to vary sharply with fluctuations in environmental temperature. Likewise the respiratory center is poorly developed so that respiration is shallow, pronounced atelectasis frequent, and attacks of severe cyanosis common even in the absence of gross pathology. Because of the immature development of the digestive tract there is apt to be marked impairment of the digestive capacity. Besides these specific difficulties the premature is faced with the same problems, greatly magnified, that confront the full term infant, namely; the calling into play of new physiological functions, adjustment to life in a germ laden environment, and of being supplied with food on which he can live and grow.

General Care of the Premature

The mortality is especially high during the first twenty-four to forty-eight hours after birth. Much of this is due to the infant's vital structures being inadequately developed for the maintenance of extra-uterine existence. However, many of these infants can be saved if proper care is instituted. Prevention of chilling and avoidance of infection are of especial importance. It has been shown that the mortality of premature babies born at home and later having subnormal temperature on admission to the hospital is tremendously higher than that of babies born under similar conditions and having normal temperature on hospital admission. Every effort should be made to prevent chilling both initially and later. The smaller the infant the more important is this precaution. The measures to be taken will depend on the facilities at hand. Primarily the room should be kept warm (75-80) and free of drafts. Bathing with oil in place of water is important in the prevention of heat loss as well as in the maintenance of a healthy skin condition. Besides this, the small premature, particularly those under three and one-half pounds will need additional local heat. In the absence of an incubator a well padded bassinet, basket or box may be utilized and heat applied by means of an electric pad, electric light bulbs properly placed within or underneath the container, hot water bottles, or warmed blankets placed around the baby. Care should be taken not to apply so much heat as to cause elevation of his temperature above normal, and of course precautions need to be taken against burning him. The body temperature should be maintained between ninety-eight and 100 rectal. The temperature of the incubator or bassinet should be kept at eighty to ninety-eight degrees according to what is found necessary to maintain the baby's body temperature within normal limits.

This degree of heat in the room necessarily will cause great dryness and the latter needs to be corrected by some means of humidification. In the absence of any special equipment, moisture can be supplied by simply keeping a basin or kettle of water constantly boiling in the room. Maintaining adequate humidity is extremely important in caring for these infants as they will not do well in an overheated dry environment.

The small premature should be subjected to as little handling as possible, and all handling should be done with extreme gentleness. Intracranial hemorrhage or other serious injury may easily be brought on by careless manipulation. No attempt should be made to dress the smaller of these infants but they should be surrounded with absorbent cotton, with a gauze or cotton pad placed under the buttocks in place of the diaper. Blankets when used should be so placed as not to cause undue pressure on the baby, as any such weight would mean an extra burden.

Infections of all kinds should be scrupulously guarded against as these babies are poorly equipped to combat any such occurrence. Attacks of cyanosis are common in the first few days and, although these may be due to gross pathology or depression of the respiratory center, they may, in the small infants especially, be due to accumulation of mucus in the respiratory tract. From the throat it may be removed

by gentle aspiration using a small soft rubber catheter and syringe for suction. For removal of mucus from the larynx and trachea the infant should be held with the head down while the throat over these regions is gently stroked toward the mouth and suction applied to the pharynx as indicated above.

When there is shallow, feeble respiration, especially if associated with attacks of cyanosis, inhalations of 5 per cent CO_2 in oxygen should be administered after first seeing that the throat is clear of undue accumulation of mucus. This may need to be given intermittently for the first several days.

FEEDING THE PREMATURE

The difficulties encountered in feeding the premature depend partly on the degree of immaturity of his digestive tract and partly on his general lowered vitality. Nothing should be given by mouth for at least sixteen to twenty-four hours after birth, and then only water or 5 per cent lactose solution for the next twelve hours. Not more than one to three teaspoons, depending on the size of the baby, should be offered at first and this repeated every two hours until feedings are begun when the baby is twenty-four to forty-eight hours old. The exact time at which feedings are started, the quantities given and the intervals between feedings will vary according to the size and vitality of the infant. During the first several days especially the maintenance of body fluid is much more important than the giving of food, and this can often be done to better advantage at this period by saline hypodermoclyses than by endeavoring to give large quantities by mouth. It is often necessary to administer fluid subcutaneously daily or every other day for a period of weeks in order to prevent dehydration and loss of weight during this time.

In only the larger and more robust of these infants can the ordinary method of bottle feeding be utilized. Others will need to be fed with a medicine dropper, or Breck feeder which do not demand much effort on the part of the baby. To others in whom the muscles of deglutition are not well developed feedings will need to be given through a small catheter passed into the stomach.

The mechanical part of feeding is extremely important and the care with which the feedings are given often mean as much to the survival of the infant as the actual content of the formula. Food should be given slowly and the utmost care taken that it does not accumulate in the pharynx resulting in strangulation, aspiration and subsequently aspiration pneumonia. Also the stomach must not be over-loaded. Distention from overfeeding may cause severe cyanosis and serious respiratory embarrassment.

In determining the type and quantity of food to be given, the prime considerations are: 1. The theoretical food requirements; 2. The individual infant's digestive capacity.

The premature baby is born with a deficiency of mineral salts especially iron and calcium, and a low serum protein concentration, suggesting a certain degree of protein starvation. The tendency to develop anemia and rickets suggests the need for iron and antirachitic elements in the diet. A food of high caloric value and rich in protein, minerals and vitamins is indicated in order to meet the increased needs for growth. However, during the early weeks the small premature's basal metabolism is at a very low rate and the increased caloric requirement does not come until after this time. The maintenance of weight by adequate fluid administration in the early period of life is of chief importance. It is necessary to recognize the underdevelopment and impaired function of the organs of digestion and assimilation and to adapt the food to the individual infant's digestive capacity. Efforts to force gain at this time are apt to result in disaster. It is safer to start with the quantity of food that will meet the infant's minimal requirements and increase it gradually to the optimal point; otherwise a severe gastro-intestinal upset may be precipitated with vomiting or diarrhea and possibly a serious set back encountered. Later the caloric needs are much higher than for the full term infant and increases in food must be made accordingly.

In regard to the specific food to be given, breast milk is always preferred, but more often than otherwise is not available. In the absence of breast milk good results may be obtained by the use of the foods mentioned above for the full term newborn infant. During the early days small quantities of these foods are given, the quantity later being increased as rapidly as the infant will tolerate, to the point that will cause a steady gain in weight. The addition of calcium caseinate or protein milk to these formulas provides for the infant's increased protein needs,

supplies extra calories, and counteracts the tendency to loose stools at this age.

My own preference has been for an evaporated milk, lactic acid, water and dextrimaltose mixture, to which one to 2 per cent calcium caseinate is added after the first week or two. During the past year I have been especially pleased with the use of the new reconstructed powdered milk "Olac" in which part of the butterfat has been replaced by olive oil and the loss of Vitamin A made up by added halibut liver oil. The further addition of calcium caseinate as in the above preparations is of advantage.

After several weeks extra A and D vitamins are added as God Liver Oil or preferably one of the concentrates, and C vitamin as orange juice or cevitamic acid. Near the end of the first month, iron alone or with copper should be given to combat the tendency to anemia.

SUMMARY

In summary, the points to be stressed in the management of the premature infant are:

1. Skillful and meticulous nursing care, preferably by one accustomed to handling premature babies.

2. Good environmental conditions as to temperature and humidity, with additional heating of the bed, if needed to maintain the infant's temperature within a normal range.

3. Scrupulous protection from infection and trauma.

4. Adequate fluid administration, by parenteral route if necessary, especially in the early weeks of life.

5. Food adapted to the infant's capacity, and containing extra quantities of protein, vitamins, and minerals. This should be given in small frequent feedings at first and increased cautiously in keeping with the ability to utilize it.

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MYXEDEMA.*

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Myxedema is described by Boothby as being a constitutional disease occurring in adults, due to decrease or absence of the secretion of the thyroid as the result of its atrophy or removal. Recently considerable advancement has been made in the diagnosis of this condition, including such signs and symptoms as changes in the mucous membrances of the nose, heart enlargement and electrocardiographic changes, changes in the cholesterol metabolism, as well as the classical syndrome of either pitting or non-pitting edema and sluggish mentality with low basal metabolic rate. The term myxedema was first applied by Ord[1] in 1880. Ravin[2] points out that myxedema and hypothyroidism are synonymous terms and should not be used simply to imply hypometabolism. Table I is taken from his article.

When the basal metabolic rate falls below minus twenty, patients usually begin to show some symptoms of hypothyroidism—sensitivity to cold, dryness of skin and absence of sweating—but they do not develop the marked symptoms—swelling, mental retardation and cardiovascular changes — until the basal metabolic rate has been below minus thirty for some time.[3]

The term "myxedema heart" was first used by Zondek[4] in 1918. Ruhberg[5] states that every case of uncomplicated myxedema presents a mental state, the essential features of which are fatigability and psychomotor retardation.

*Read before the Southwestern Virginia Medical Society, at Blacksburg, Va., September 22, 1938.

TABLE I
MYXEDEMA
SYMPTOMS AND FINDINGS

General
- (1) Fatigue
- (2) Weakness
- (3) Inability to stand cold
- (4) Weight increase
- (5) Fat increase:
  - General
  - Supraclavicular

Skin
- (1) Paleness
- (2) Dryness and scaliness
- (3) Absence of sweating
- (4) Hair: Scanty
  - Coarse
- (5) Nails brittle

Circulatory
- (1) Shortness of breath
- (2) Slow pulse
- (3) Small pulse pressure
- (4) Poor quality of heart sounds
- (5) Dilatation of heart
- (6) Electrocardiographic changes:
  - Low voltage, especially in T waves in Leads I and II

Edema
- (1) Eyelids
- (2) Face—cheeks
- (3) Ankles:
  - Non-pitting
  - Pitting

Mental and Neurological
- (1) Drowsiness
- (2) Slow speech
- (3) Numbness and tingling
- (4) Impairment of memory
- (5) Impairment of hearing
- (6) Prolongation of tendon reflexes

Gastrointestinal
- (1) Constipation
- (2) Poor appetite
- (3) Indigestion

Blood
- (1) Increased cholesterol
- (2) Moderate anemia

Lowered Basal Metabolic Rate

Other manifestations of myxedema have been particularly interesting to me. One is rhinitis. This is not specific, nor peculiar to this disease. It seems to have nothing to do with allergic sensitiveness. I believe it is because of a swelling of the whole body. While a swelling of a fraction of an inch on the body or extremities would scarcely be noted, even a very slight swelling of the nasal mucosa would obstruct breathing, leading to accumulations in the accessory sinuses with congestion.

Metrorrhagia occurs as a fairly frequent symptom in women before the menopause. This would suggest the fact, which has never been entirely proven, that there is a swelling and congestion of the uterine mucosa and probably a slight uterine enlargement.

Blood cholesterol is consistently elevated. It is not only important to estimate it before treatment but afterwards as well, in order to note the change under treatment. The cases with low basal metabolic rate and normal cholesterol are rarely benefited by thyroid medication.

Anemia:—The moderate degree of anemia in cases of myxedema is due to the general inactivity of the blood forming organs in common with the rest of the body. However, the pallor is out of all proportion to the blood count. It has been the experience of a good many workers that this anemia is not relieved by thyroid therapy alone but must be supplemented by iron.

The urine often shows a trace of albumin and is often of diagnostic importance since many of these cases are classified as nephritics.

Cases of myxedema almost invariably show changes in the electrocardiogram.[6] Flattening or inversion of the T wave in Lead two is probably the most characteristic change, but low voltage of all complexes and flattening of the T wave in other leads is also very frequent.

Treatment. Myxedema is one of the conditions which the physician can treat, confident of his ability to help the patient. Desiccated thyroid gland, because of its dependability and cheapness, is the form most generally employed; and I have been impressed in going over recent literature on the subject, that the tendency is toward the use of small doses. It is probably best to start the patient on about two grains daily, regulating the dose according to individual requirements after about ten days. Conklin[7] states that the patient must be warned that all untoward symptoms are apt to recur if treatment is stopped and that he must continue it for years if not for life.

The diagnosis of myxedema is often missed. In a series of forty-three cases reported by Means and Lerman,[8] the patients had had it for from one to fifteen years.

I wish to report an illustrative case. Mr. J. W. was admitted to the Lewis Gale Hospital in the fall of 1937 because of a crushing injury to his leg resulting in infection. His leg was amputated, with a

resulting cellulitis of the stump and osteomyelitis of the end of the tibia. He cleared up promptly under sulfanilamide and was discharged March 7, 1938. At that time he showed no evidence of myxedema. Later, he was readmitted to the hospital complaining of swelling of his whole body. We naturally suspected that this was the result of the use of sulfanilamide. Examination showed the presence of a puffy non-pitting edema involving the whole body. The urine showed a trace of albumin; the kidney function test was normal; blood creatinin, chlorides, plasma protein, calcium nitrogen and urea were within normal limits. Basal metabolic rate was minus twenty-three. Cholesterol and sugar were not estimated. His temperature was subnormal, pulse from sixty to seventy. After one week of thyroid treatment he began to show remarkable improvement and has since remained entirely well on thyroid medication.

This brings me to the final thought which I wish to leave—that myxedema is not a rare disease and if we seek it we will find it among our cardiac, nephritic and general debility cases.

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THE VALUE OF THE PERIODICAL HEALTH EXAMINATION.*

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The periodical health examination's aim is primarily to preserve health through advice related to the various activities of the individual, and, secondarily, to the discovery of diseases—particularly the degenerative diseases—and their correction, if possible. The education of the laity as to the necessity of such an examination and the profession as to the importance has been very slow.

From man's supposed beginnings in Mesopotamia and his progress in Egypt to that period that was the glory of Greece and the grandeur of Rome, through the dark ages of the Renaissance and onward to the last of the eighteenth century, little progress was made in his advancement. His travel was limited to the speed of boat or horse; his food was grown or found in the forest near his home; his clothes were home-spun; disease swept his location and in many cases he had only superstitions with which to fight back. Man was hemmed in by the writings of the great who had gone before; by political and religious taboos; by his own fear of knowing the truth.

It is true that during this long period of slow progress a few wise and courageous individuals made great contributions to the knowledge of man in all fields, and there was no exception in medicine. From the earliest time, medicine and its practice has had three great objectives—palliation, curing, and prevention of disease. Since it is the last in which we are primarily interested at that particular time, it will not be amiss to see what, if anything, had been accomplished in this field before the nineteenth century began. Preventive medicine in the present conception is fairly modern, but in ancient times they had some ideas about preventive medicine. In the Old Testament, especially the books of Leviticus and Deuteronomy, were well defined rules and regulations for caring for certain conditions—in the quarantine of skin diseases under the term "leprosy"; isolation of venereal diseases; regulation of sex, diet, and camp and personal hygiene.

The Greeks had a working knowledge of the importance of preserving human life; and it is of in-

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From the Health Clinic of the out-patient department of the Medical College of Virginia.

terest that Hippocrates said "I will give nothing whatever destructive, and deeming it the special province of medicine to guard and preserve what nature generates." During the tenth century, Israeli in North Africa wrote—"The chief task of the physician is to prevent disease."

Preventive medicine may be dated from 1716-1794, when James Lind, of England, found that lemon juice prevented scurvy, and Edward Jenner's discovery of smallpox vaccine in 1796. To Dr. Horace Dobell, 1861, of England, and Dr. Gould, of Philadelphia, of this country, must go credit for bringing before the profession and the laity the importance of the periodical health examination. Dr. Dobell, writing in England, said—"I want to propose that there should be instituted, as a custom, a system of periodical examinations, to which all persons should submit themselves, and to which they should submit their children. If such a plan were to be faithfully and consciously carried out by the present and rising generation of well-educated studious medical men, I think no one can doubt, after a careful consideration of the subject, that immense benefits would be conferred upon the public." This work was greatly stimulated during the late world war when out of two and a half million men examined, it was found necessary to reject 38 per cent as unfit for military service. In 1922 the American Medical Association recognized the importance of the periodical health examination and had printed a "Manual of Suggestions for the Conducting of Periodical Examinations of Apparently Healthy Persons." The insurance companies very early saw the importance of a periodical examination of their policy holders and began to have such examinations made. One company found that they received from six to seven more annual insurance premiums from those examined than from those not examined. For every dollar invested in this work they received in added premiums six dollars.

All surveys of supposed healthy groups of individuals have shown that a high percentage of them will be found suffering from one or more diseases or complaints that can be cured or at least helped. The results of the draft have already been shown. In 1925, Dobbin, Fisk and Kopt, from their survey of 16,000 white males, concluded—"It is entirely credible that the facts shown from this group of more than 16,000 males are indicative of conditions in the general population of white males. If so, it is clear that a wider extension of periodical health examinations among the adult population is indicated. Hygienic advice and the prompt treatment of both major and minor defects thus discovered may lead to the prevention of serious consequences to those individuals later on. Most of the defects and impairments discovered in the younger ages of adult life are subject to effective control."

The present survey of 500 unselected patients from the files of the out-patient department of the Medical College of Virginia who had been examined in the Health Clinic was begun with the idea of determining what percentage of these people showed pathological conditions. These patients did not come to the clinic complaining of some disease, but in the majority of cases, were brought in by a case worker from the Citizen's Service Exchange which demanded that all of its associated members be examined; also a number of people who sent their nurses and maids in for check-up examination; W. P. A. workers who were sent in for classification as to their physical ability to do manual labor. The age distribution of these patients was such as to give us a fair cross-section of almost any 500 patients that we could select in the same stations of life. There were no patients below twelve years of age as a ruling in the clinic sent these patients to the pediatrics department. For that reason, our survey is one of early adolescence and adult life with a few patients in advanced years. In Table 1, we have a chart that shows the age distribution as well as sex and color, the 500 patients being divided as follows: 166 white males, 145 white females, ninety-nine negro males and ninety negro females. The youngest was twelve years of age and the oldest seventy-eight years of age.

TABLE 1.—AGE DISTRIBUTION OF THE 500 PATIENTS.

	0–20	21–30	31–40	41–50	51–60	61–70	71–80	Total
White male	49	41	21	27	17	7	4	166
White female	53	25	15	34	13	1	4	145
Negro male	42	16	9	18	10	3	1	99
Negro female	25	22	18	11	10	4	0	90

A complete history and physical examination was done on all of these patients. Pelvic examinations were done on all married women and on single women when physical findings or history indicated.

Rectal examinations were done on all patients. There was a certain minimum amount of laboratory work done, a routine Wassermann or Kahn, urinalysis, a sedimentation rate of the erythrocytes, wet smears from prostatic fluid, and blood work when indicated. If chest findings indicated, these patients were fluoroscoped. When the patients' examination had been completed and if pathological changes were noted, the patient was referred to the proper department in the clinic for further observation and treatment. So far as possible, they were given the proper hygienic advice in the health clinic on their first visit.

In this group of 500 patients, there were made a total of 1,739 diagnoses or an average of 3.8 diagnoses per patient. Only twenty-five people, or 5 per cent passed through the clinic without a diagnosis of some description. In the greater majority of patients, the findings could be classified as minor. Incidentally these findings were the easiest to correct. Figure one shows in graphic form the number of patients, the number with no diagnosis and the total number of separate diagnoses.

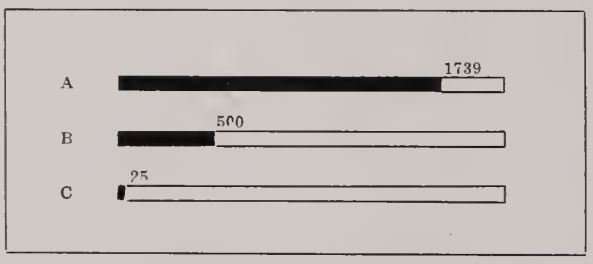

Fig. 1.—A.—Total Number Diagnoses. B.—Number of Patients Examined. C.—No Physical Findings.

Table 2 gives the number of diagnoses in each age group, the sex and color of each group. In the white males, we had the lowest number of diagnoses per individual—2.88, with the white females next with 3.54. The negro males had 3.7 and the highest average was found in the negro female with 4.3 per person.

TABLE 2.—NUMBER OF DIAGNOSES IN THE DIFFERENT AGE GROUPS.

	0–20	21–30	31–40	41–50	51–60	61–70	71–80	Total	Number Per Patient
White male...	105	105	61	90	73	30	13	480	2.88
White female.	101	88	49	161	75	8	32	514	3.54
Negro male...	95	46	36	89	65	17	9	357	3.7
Negro female.	78	87	96	57	57	13	0	388	4.3

Table 3 gives the named diagnosis made at the first visit to the clinic and the number of times each diagnosis was made. Teeth in need of some dental repair led with 378 of the total 500 patients. Corns came next with 167, followed by diseased tonsils 120, pyorrhea 112, hypertension ninety-six, visual disturbances ninety-five, defective hearing seventy-two, malnourishment and flat feet with sixty-two each, chronic myocarditis fifty-two, syphilis forty-three, pelvic inflammation thirty-nine, etc. In all, sixty-seven different diagnoses were made. Many of these patients could have been taken care of by having only a small amount of necessary work done for them; in others the diagnosis showed advanced degenerative diseases that had progressed to the point of almost a hopeless prognosis.

TABLE 3.—DIAGNOSES MADE AND THE NUMBER OF TIMES FOUND.

Teeth	378	Catarrhs	5
Corns	167	Lordosis	4
Diseased Tonsils	120	Sebaceous Cyst	4
Pyorrhea	112	Pharyngitis	4
Hypertension	96	Nephritis	4
Visual Disturbance	95	Breast Tumors	4
Defective Hearing	72	Acne	4
Malnourishment	62	Anemia	3
Flat Feet	62	Asthma	3
Chronic Myocarditis	52	Athletic Feet	3
Syphilis	43	Pregnancy	2
Pelvic Inflammation	39	Psychosis	2
Arteriosclerosis	37	Phymosis	2
Cervical Erosion	33	Ingrowing Toe Nail	2
Obesity	28	Diabetis	2
Chronic Prostate	23	Tuberculosis	2
Bronchitis	20	Cervical Polyp	2
Hypertrophied Glands	20	Lipoma	1
Hernia (all types)	20	Jaundice	1
Hypotension	21	Chronic Gall-Bladder	1
Rectocele	20	Eczema	1
Cystocele	17	Muscular Atrophy	1
Coryza	18	Rectal Fistula	1
Vaginitis (non-specific)	16	Exostosis (ankle)	1
Systolic Murmur	16	Dislocation of Hip	1
Chronic Arthritis	15	Sinus Arrhythmia	1
Scoliosis	15	Urethral Carbuncle	1
Gonorrhea	14	Varicocele	1
Retroversion	13	Hydrocele	1
Simple Thyroid	11	Hay Fever	1
Varicose Veins	8	Kyphosis	1
Pelvic Tumor	5	Emphysema	1
		Spastic Paralysis	1

It was thought that a study of the comparative nutritional state of the white and negro would be of interest. Table 4 is of interest in that it reveals a better state of nutrition of the negro than the white in this particular group of patients. Two per cent of the white males and 10.6 per cent of white females

were over-weight, whereas they showed a 22.2 per cent and 21.8 per cent of under-weight respectively. On the other hand, the negro males showed 9.3 per cent over-weight and the negro females were 15.9 per cent over-weight, but showed only 10.6 per cent and 15.9 per cent under-weight respectively. It is possible that the better state of nutrition might be explained on the basis of the fact that many of the negroes were servants in white homes.

TABLE 4.—OVER AND UNDER WEIGHT CHART.

	Number Patients	Over Weight				Under Weight			
		10–20%	20–30%	30% and Over	Total Percent	10–20%	20–30%	30% and Over	Total Percent
White male...	139	3	0	0	2	9	10	2	22.2
White female.	94	5	4	1	10.6	3	8	0	21.8
Negro male...	75	4	3	0	9.3	5	2	1	10.6
Negro female	69	1	1	9	15.9	4	4	3	15.9
Total.....	377	13	8	10	8.5	31	24	6	16.2

The blood pressure readings of this group of patients were as one would expect, for the negro showed a slightly smaller percentage of hypotension and a larger percentage of hypertension. In this group, Table 5, we find the white male to have 7.2 per cent

TABLE 5.—BLOOD PRESSURE READINGS.

	Number Patients	Normal Blood Pressure	Hypotension			Hypertension			
			15–25	25 or More	%	20–40	40–60	60 or More	%
White male...	166	132	11	1	7.2	17	3	2	13.3
White female.	145	101	17	5	14.9	13	5	4	14.9
Negro male...	99	72	8	0	8	11	4	4	20.1
Negro female.	90	56	5	1	6.6	13	10	5	31
Total.....	500	361	41	7	9.6	54	22	15	18.5

hypotension and the white female 14.9 per cent hypotension. The white male had 13.3 per cent hypertension and the white female a slightly higher percentage in 14.9 per cent. The negro male had 8 per cent and the negro female 6.6 per cent hypotension, but the negro male showed 20.1 per cent hypertension and the negro female showed a 31 per cent hypertension. The whole group of white and negro patients had 9.6 per cent hypotension and 18.5 per cent hypertension.

Since this was a health survey, it was thought that a study of the number of patients who had been vaccinated for smallpox and typhoid and immunized against diphtheria would be of interest. It was quite a surprise to find that 23.5 per cent of the total group had not been vaccinated for smallpox. This figure is broken up as follows: white male 20 per cent, white female 21.5 per cent, negro male 20 per cent and negro female 33.3 per cent. These percentages appear to be rather high in light of the amount of educational work that has been done on smallpox for so many years. Typhoid fever showed a 77.5 per cent and diphtheria 83.5 per cent who had not been protected by immunization. These figures are shown in Table 6.

TABLE 6.—NUMBER IMMUNIZED AGAINST SMALLPOX, TYPHOID AND DIPHTHERIA.

	Number Patients	Smallpox			Typhoid			Diphtheria		
		Vaccinated	Not Vaccinated	% Not Vaccinated	Vaccinated	Not Vaccinated	% Not Vaccinated	Immunized	Not Immunized	% Not Immunized
White male...	166	133	34	20	58	108	65	30	136	82
White female..	145	111	31	21.5	23	122	84	15	130	90
Negro male...	99	78	21	20	21	78	78.8	20	79	78.8
Negro female..	90	60	30	33.3	10	80	87.8	19	71	78.8
Total..	500	382	118	23.5	169	331	77.5	84	416	83.5

COMMENT

To date, the prevailing conception of the doctor is at the bedside of the sick. In the periodical health examination movement, it will be as the guardian of health, rather than as a caretaker of the sick. Cooperation between the doctor and patient will add many years to the individual's life—years lived in comfort and well being. His regular examination will give happiness to self and dependents.

Much progress has been made in the control of disease as the downward trend in the death rate indicates, a decrease from 18 per thousand in 1900

to 11 per thousand in 1935. It must be remembered that this saving is primarily in childhood and that this leaves a greater percentage to reach the age when degenerative diseases take their toll. Cancer has jumped from 63 per hundred thousand in 1900 to 108 per hundred thousand in 1935; diabetes, heart disease and kidney diseases have shown an increase. This is a challenge to us—a challenge that can be met, in part at least, by the systematic checking up of our patients. While making these checks, it must always be borne in mind that the individual patient is far more important than any physical ailment that he might possess, and for this reason, as we give him advice as to how to take care of his disease or hygienic maladjustment, we do not make a mental or physical invalid of him by over-stressing our findings.

The periodical health examination, it seems to the writer, is a wonderful place for a general practitioner, who is in a vulnerable position, to study that least understood part of medicine, the beginning of disease and the effect of early treatment. The following of a series of patients through the years would add much to the sum total of our knowledge of this most important problem.

CONCLUSION

From the study conducted on this group of patients, it is quite apparent that many who think themselves free of disease and in good physical condition, are in reality in need of medical care. When only 5 per cent of a group of 500 patients are found free of disease, it seems that the time has come for a campaign to publicize the importance of systematic health examinations. The majority of the physical findings were of a minor nature, but a large enough percentage showed major defects in this group to justify us recommending the periodical health examination to our patients.

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DISCUSSION

DR. FRED J. WAMPLER, Richmond: Dr. Simms is to be thanked for bringing to our attention this work on Five Hundred Health Clients.

The pediatrician and the obstetrician years ago learned the importance of physical check-ups on presumably well children and normally pregnant women. The great improvement in the death rate among infants and the great saving of mother's lives, of women who get this service of well-qualified pediatricians and obstetricians is proof enough of the value of their forethought. When the general practitioner of medicine begins fully to use this method of caring for his regular patients, we not only should see a prolonging of life in the upper age group, but a much happier and wholesome adult life.

In the short time at my disposal in discussing this paper, it is impossible to cover all the points that might be covered. I want to stress one point that Dr. Simms did not mention. The health examination is of great comfort to many people receiving the examination, because the average person has some mental reservations about his own well-being. When his physician, after careful and thorough examination, tells him that, in his mind, he is in excellent shape or in good shape, with the exception of several defects that might be corrected, this cannot but make a satisfactory impression on the mind of the one examined. Many people have little worries about their own mental reactions and adjustments. The health examiner can be of great comfort to this group or to this class of persons.

I should also like to call the attention of this group to the fact that a wide-awake examiner will pick up most abnormalities in reasonably early stages without the more expensive laboratory techniques. With the Wassermann test, with the urinalysis, with the red cell sedimentation rate, with the blood counts and other blood tests as indicated, with the blood pressure and a complete physical check on the entire body, most defects will be discovered. X-rays and other more expensive laboratory tests can be left to clear up points where there is really suspicion that pathology exists. By using this plan in the health examination, it will not be made unnecessarily expensive, and, therefore, will be more extensively used.

THE RESPONSIBILITY OF THE GENERAL PRACTITIONER IN THE PREVENTION OF MORTALITY IN ACUTE ABDOMINAL CONDITIONS.*

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Abingdon, Virginia.

In the past six months I have had seven cases of acute abdominal conditions admitted to the hospital. They were as follows: one case of intestinal obstruction, two of strangulated hernia, four of ruptured appendix. Two died without operation, one died following operation, four recovered following operation. This is a mortality of over 40 per cent. I think this experience alone justifies my paper today.

Back in the horse and huggy days when the roads were bad, the hospitals few, and the doctor travelled at the rate of about four miles per hour, there was some reasonable excuse to justify delay in getting a patient to the surgeon promptly for emergency operation, but with good roads and modern fast automobiles, and with laboratory and hospital facilities accessible to most every community, a better service to this group of patients should result in the saving of many lives.

In speaking of acute abdominal conditions I refer to such diseases and conditions as appendicitis, strangulated hernia, intussusception, diverticulitis, perforation of the bowel, intestinal obstruction, peritonitis, and many other conditions occurring in the abdomen, whose treatment is essentially surgical.

It is not the purpose of this paper to discuss the causes, symptomatology and treatment of abdominal conditions, but to stress the fact that the mortality in these cases due to delay in hospitalization is still much higher than it should be. In most instances it is the general practitioner who sees these patients first and has them under his control. Here the matter of diagnosis is most important and often may be difficult. The symptoms may, or may not, be severe, and the matter of close observation and proper management for the next few hours may determine whether or not the patient will live or die. A few recent cases in my practice will illustrate how serious delay of operation may be.

Case 1. Married man, age thirty-eight years, weight 170 pounds, previous health good. This patient came walking into my office about noon. He was stooped and his expression was one of extreme suffering. He had pain and tenderness in lower right quadrant, rigidity of right rectus muscle, pulse rate increased and temperature 103 degrees. The pain had begun on previous day. After explaining to him the necessity for immediate hospitalization, I gave him a hypodermic of morphine, and he agreed to meet me at the hospital immediately after returning home. He failed to arrive at the hospital that afternoon. Not liking the idea of an operation, and having received temporary relief from the hypodermic, he sought medical aid elsewhere. About thirty hours later he was brought to my office, and taken on to the hospital, where he died without operation from ruptured appendix and peritonitis. I think that the pain-relieving and mentally-soothing effect of the morphine was an important factor in causing this man to delay the only procedure that offered him any hope of recovery.

Case 2. Farmer, age thirty-seven years, weight 140 pounds. Always well and active previous to present illness. He ate some cherries on Sunday, suffering slight abdominal pain that night. He worked Monday and Tuesday, still suffering pain and increasing tenderness. I was called on Wednesday morning. He did not appear to be very sick, but had had some pain and vomiting the past few hours. Examination revealed some tightness of the muscles across the lower abdomen, and definite tenderness and pain localizing about one inch to the left of the umbilicus. As this man had no increase of pulse rate or elevation of temperature I felt justified in ordering a low enema and one-sixth of grain of morphine hypodermically, keeping him under observation the next few hours. I saw this patient again in the late afternoon of the same day. The picture had changed. His temperature was 103 degrees., pulse rate increased, with continued vomiting and pain. He was immediately taken to the hospital where he underwent operation that night. Operation chart read as follows: "Diagnosis acute gangrenous perforative appendicitis with generalized peritonitis. The distal portion was tightly tied down in center of abdomen. The pelvis contained a large amount of

*Read before the Southwestern Virginia Medical Society, at Blacksburg, Va., September 22, 1938.

thick, foul smelling pus." While it is hard to understand why this man delayed calling medical aid for several days, it is likely that he and other members of the family were misled on account of the pain being on the left side of the abdomen. A further error in the handling of this case was the failure of the physician to make a more prompt diagnosis after he was called, thereby delaying the operation several hours. Due to the benefits of modern surgery this man made a slow recovery.

Case 3. A few months ago I was called to see an elderly lady suffering with acute abdominal pain and vomiting. The onset of symptoms had occurred several hours before. On examination I found an oblong mass about one and one-half inches in length, located two inches below the umbilicus. This tumor was firm and could not be reduced by pressure or manipulation. Diagnosis of strangulated abdominal hernia was made, and the patient and her folks were advised that she should be taken to the hospital immediately for emergency operation. She was given a hypodermic of morphine to control her vomiting and pain. The family waited to communicate with her relatives in another state, and did not get her to the hospital until the next morning. She was received at the hospital in a moribund condition, and returned home dead the same day. Delay in this case was tragic, because early operation in this condition is practically always successful.

These are a few of the numerous cases in my practice that have resulted in loss of life, or near loss of life, owing to delay in getting them to the hospital where surgery is available. It occurs to me that unless my experience has been different from that of other physicians in the territory represented by this Society there is still an appalling mortality due to unnecessary delay in hospitalization of those with acute abdominal conditions. The New York Life Insurance Company reports that in the death of every thousand policy-holders in that Company during the year of 1937 fifteen deaths were due to appendicitis. These, for the most part, were preventable deaths.

What are some of the factors that cause delay in the hospitalization of these surgical cases? Delay in seeking medical advice perhaps comes at the top of the list. There is a tendency on the part of many to make their own diagnosis. Very often they erroneously attribute their pain to some indiscretion in eating, indigestion, worms, gas colic, etc., and resort to self-medication by taking large and repeated doses of salts, castor oil, various liniments and pain tablets, thereby paving the way for disaster.

Another factor is the disinclination of many to go to the hospital, or outright refusal of operation. This is particularly true of certain religious sects, and also the over-optimistic type who will try grandmother remedies for several days before reluctantly admitting that their medicines and ministrations have failed. In one of my cases the father had given worm medicines for three days to his ten-year-old son who had appendicitis, the boy growing worse all the time. Finally the father decided that what this boy needed was a strong dose of "liver" medicine. I asked him if he had had a physician. He said "no," but he had no objections to my going and looking the boy over. He was dying when I reached his bedside, and the parents, strangely, never appeared to realize the normity of their blunder.

When the general practitioner is finally called to see these cases, from that time on the responsibility is squarely on him. Often he is faced with an emergency of the gravest kind, when he is least expecting it, and poorly prepared to deal with it. The diagnosis is not always easy, especially if the patient lives in a remote section where laboratory and X-ray facilities are not available, and where the physician has not the opportunity to have the patient under constant observation. If in doubt, the physician should either take the patient to the hospital for further study of the case, or request consultation. When diagnosis of a surgical condition is made at the bedside, it may require extraordinary powers of eloquence and persistent efforts to gain consent of the patient to go to the hospital. But here we must remember that procrastination is the thief of time, and delay has resulted in many deaths.

There are few of us who have practiced medicine over a period of years who do not have sad memories of unnecessary deaths resulting from tragic delays in getting patients to operating table in time for surgery to be effective. If it is the duty of the medical profession to relieve suffering and pain and to save life whenever possible, I feel that in the group of cases we have been discussing we have failed as yet to realize our full possibilities, and I wish to state that a more serious and alert attitude, if possible, on the part of the general practitioner in making it possible for them to reach the surgeon earlier will bring a further reduction in the mortality due to acute abdominal conditions.

THE SIGNIFICANCE AND MANAGEMENT OF ANKLE EDEMA.*

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Richmond, Virginia.

In order to determine the significance of abnormal accumulations of fluids in the tissues, one must first have some knowledge of the pathogenesis of edema. For fluid to occur in unusual amounts there has to be some disturbance of the normal equilibria which exist between the tissue fluids and the blood or between the tissue fluids and the cells and the lymph. We will consider first the capillary walls. Water, crystalloids and dissolved gases readily pass through normal capillary walls but, with the exception of the liver and intestinal mucosa, the capillaries are impermeable to colloids. When capillaries are injured the normal equilibrium is upset and colloids in the form of plasma proteins pass into the tissues. If an abnormal amount of protein is found in the edema fluid, it can be assumed that there has been some change in the permeability of the capillary wall. A second factor in the production of edema is the increased hydrostatic pressure in the capillaries. If this pressure is increased above the colloid osmotic pressure of the blood, a transudation of fluid into the tissues occurs. This helps to explain partly the edema secondary to elevated venous pressure as in heart disease or local disturbances of venous circulation as occur in varicose veins. The next important condition incidental to edema formation is found when the colloid osmotic pressure of the blood is low, either through loss of proteins in the urine or inadequate consumption of proteins in the diet. The greater part of the osmotic pressure is exerted by the albumen fraction and when this falls below 2.5 per cent, or approximately one-half its normal serum value, edema develops. Once the tendency to edema formation is present an excessive amount of sodium available in the organism will cause the greater part of the ingested water to be retained as edema fluid. It is not the chloride of salt which holds the water but the sodium, because potassium chloride does not produce water retention.

Of course, not one of these factors mentioned can be said to work alone. There may be a capillary hypertension complicating an injury to the capillaries and this might be aggravated by excessive salt intake. A condition such as this might occur in acute glomerular nephritis.

Edema, in the mind of the laity, is often linked with kidney pathology, but it does not confine itself to such narrow limits and may be due to a variety of causes. In most instances swelling of the ankles is not an early sign of trouble, but it may be the first thing that brings the patient to the physician. A hidden edema may be present for some time before the ankles are affected. The process may be local with unilateral or bilateral accumulation of fluid in the ankle tissue because of the dependency of that portion of the body. On the other hand, there may be a combination of the two, a general edema with local lymphatic or circulatory changes, which aggravate the first condition; varicose veins are frequently found complicating edema from cardiac failure, and the swelling becomes greater on the side with more venous pathology. Of the local conditions, the physiological swelling which occurs in normal people who spend some time in the standing position is probably the most common. This usually occurs in individuals who are overweight and is most pronounced at night and disappears after bed rest overnight. Local pitting edema is seen occasionally following sunburn and is due chiefly to injury of the capillaries in the area involved. Probably the most common local disturbance which causes ankle swelling is varicose veins. As a rule varicosities occur in the older group of individuals and other causes of edema must be ruled out because a cardiac, renal or nutritional edema may be superimposed. A phlebitis in the acute stages may cause swelling or the swelling may persist or recur some years after, due to the permanent damage to the veins and lymph channels. A venous thrombosis extending upward to obstruct the inferior vena cava may result in a massive edema from the abdomen downward, involving both limbs.

A massive bilateral edema in most instances is due to heart failure, the primary causes being hypertension, coronary disease, valvular heart disease and *cor pulmonale* incident to lung pathology, a right-sided failure. Failure of the right heart alone is rare, but when edema is present with a palpable liver,

*Read before the Southside Virginia Medical Association at its meeting at Piedmont Sanatorium, Burkeville, September 13, 1938.

distended neck veins with the patient in the sitting position, absence of dyspnea and orthopnea, this condition must be suspected. If an electrocardiograph machine is available, the finding of right axis deviation may afford additional evidence, in the absence of rheumatic or congenital heart disease. Another condition which gives similar findings, including ankle edema, is chronic constrictive pericarditis. Here ascites is prominent and the spleen and liver may be palpable. The heart is fixed and usually but not always small. The elevated venous pressure is striking and the finding of a calcified pericardium by X-ray, plus electrocardiographic changes consisting of low voltage and flat or inverted T-waves in all leads, is usually conclusive evidence. In coronary disease there should be a history of anginal attacks, a coronary thrombosis or progressive breathlessness preceding the ankle edema. Hypertensive cases may have a mild swelling of the ankles without heart failure, due simply to increased hydrostatic pressure or may in later stages, when the heart has failed, present a massive ankle edema. There may be, and frequently is, an associated coronary disease. Valvular heart disease is usually rheumatic in origin. Edema may occur during an attack of acute rheumatic fever where the heart is extensively involved or after a long mechanical strain from valve defects. Rarely, edema of the ankles follows heart failure from congenital valve defects.

There are three other conditions where the ankle edema may or may not be due to heart failure, myxedema, thyrotoxicosis and nutritional edema. The heart is enlarged in myxedema, but the edema usually is not due to heart failure and follows the disturbance in metabolism. If edema occurs in thyrotoxicosis, it is probably due to heart failure and auricular fibrillation is a prominent feature. These cases are probably associated with some coronary disease. In nutritional edema there is a history of an inadequate diet, especially in proteins and the serum protein value is low. The heart is not involved unless there is a vitamin B deficiency and if this is the case edema may be due to heart failure from the so-called beri-beri heart.

Nephrosis and acute and chronic nephritis are well known causes of edema. Nephrotic edema contains little protein and is due to excessive loss of protein in the urine in the form of albumen; this is the most outstanding part of the picture; hypertension is usually absent. Nephritic edema is high in protein content because of diffuse capillary damage and is distinguished in the acute stages by the constant finding of blood in the urine and in chronic forms by the appearance of a hypertension. Edema of the eyelids occurs with nephritis but is rarely seen in heart failure.

There is a less important group, because of their rarity, consisting of certain types of familial edema of an angioneurotic type, edema following ingestion of certain drugs, poison and snake venom, following secondary or pernicious anemia, Hodgkin's disease and leukemia, convalescence from long illnesses with stasis in lymph channels, Milroy's disease (a familial malady which causes an edema with less swelling around the joint, giving a link-sausage effect) and finally the terminal ankle edema following carcinoma, sarcoma, tuberculosis and cachectic states. Cirrhosis of the liver sometimes causes ankle swelling but usually after repeated abdominal taps with depletion of the serum proteins. Insulin may produce edema either by retained water incidental to carbohydrate storage, by setting free alkali, by producing shock or by changes in the colloids due to metabolic adjustments.

Edema of the ankles does not require emergency measures of therapy, but successful management depends on a proper diagnosis and carefully planned treatment. When the edema is due to heart failure from any cause, it is best to get rid of the excessive fluid first and release some of the extra burden on the heart; digitalization can be started later. The best method of releasing the fluid is by diuresis, and the best diuretics to use are the mercurials, either Salyrgan or Mercupurin and these work better after acidosis has been produced with ammonium chloride, in doses of three grams a day. The mercurials should be given intravenously, 2 c.c. every other day for two or three doses, or more, according to the response. Fliuds should be restricted and salt not added to food after it leaves the kitchen. Chronic cases responded to the xanthin diuretics occasionally and these should be given with intervals of rest because they lose their effectiveness after ten days to two weeks. Occasionally Southey tubes or simple punctures around the ankle may relieve obstinate cases which fail to respond to more conservative measures. These procedures should be done under sterile precautions. Diuretics are also helpful in edema due to constrictive pericarditis and cirrhosis of the liver. The treatment of choice for *concretia*

cordis is pericardial resection. Myxedema responds best to a diet adequate in proteins plus thyroid extract, one grain, daily. Nutritional edema is treated by a high vitamin, high protein diet and is occasionally benefited by blood transfusion. The edema of acute nephritis usually disappears with proper management of the disease. Fluids should be limited to 500 or 600 c.c. of fruit juices daily for three days. Proteins can be started after a week and salt should be restricted. Nephrosis and chronic nephritis should be treated with a high protein intake; sodium salts and fluids restricted. (A high protein diet is contraindicated when the kidneys do not concentrate well or where nitrogen retention is marked as shown by elevation of the non-protein nitrogen level of the plasma.) Diuretics are seldom necessary and may be dangerous, although Salyrgan and Mercupurin have been used in both nephritis and nephrosis. In acute nephritis or in any case where oliguria develops, fluids should be forced to 2-3,000 c.c. daily. Occasionally chronic nephrosis is associated with a low basal metabolic rate and thyroid therapy is helpful. Large doses are well tolerated whereas in true myxedema the effectual dose is usually very small. The edema following anemia usually responds well when iron therapy is used for secondary anemia and intramuscular liver extract for pernicious anemia. The best compound of iron to use is ferrous sulphate in doses of one gram daily. Phlebitis in the acute stages needs no special treatment but the leg should be put to complete rest and not massaged. If edema persists when the patient becomes ambulatory, an elastic bandage should be used. Varicose veins may be treated conservatively by strapping with bandage. The best thing to use for this is Elastoplast, a waterproof bandage which can be left on for two weeks or more at a time. Small varicosities of the calf of the leg usually respond well to injection treatment alone. If there are incompetent valves of the great saphenous vein alone, high ligation above all tributaries plus the injection of 2 c.c. of 5 per cent sodium morrhuate into the distal segment of the vein insures the best end result. The operation does not require hospitalization and the patient may go home after one hour. If the other valves are incompetent, the internal saphenous vein should be ligated below all communicating veins with bad valves. The extent of ligation and incompetency of the valves is determined by application of a tourniquet at various levels along the thigh. The contraindications to active treatment are old age and debilitating diseases, the presence of pregnancy or phlebitis, and impairment of the arterial blood supply to the part.

The edema of Milroy's disease may respond to a supporting elastic bandage or stocking, thyroid extract and massage. Benefit may be derived from an operation of the Kondoleon type which attempts to establish lymph drainage with the unobstructed deep lymphatics, by spiral incisions and removal of wedge shaped pieces of skin, subcutaneous tissue and fascia. Sistrunk's operation consist of removal of skin, fat and aponeurosis through an elliptical incision extending from the crest of the ilium to the external malleolus, after preoperative elevation and bandaging of the part for two weeks. Handley's operation is of limited value and resorts to strands of tubular silk to afford drainage with the deep lymphatics.

Insulin edema can be controlled by restriction of salt and withdrawal or reduction of the dose of Insulin. Some cases will clear with restriction of salt alone.

There is no treatment for the terminal edema of wasting diseases.

808 Professional Building.

FISH-BONE PERFORATING THE CAECUM SIMULATING ACUTE APPENDICITIS.

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Washington, D. C.

Ingested foreign bodies do not often perforate the intestinal tract. Among those that do, the fish-bone is perhaps the commonest offender. This is readily understood when we consider the relative frequency with which people complain of fish-bones becoming lodged in the throat. However, the condition is infrequently found at operation, to judge from the paucity of cases reported in the literature. Six cases were reported for a twelve-year period from one of New York's largest hospitals. Bearse reported three cases, Armitage three, and the few others are isolated cases.

The clinical picture presented by these cases is usually interpreted in terms of a common inflammatory lesion of some part of the abdomen and the true condition is not suspected until it is revealed by laparotomy. In some instances a careful pre-operative history might have given a clue to the diagnosis as in the following case recently treated by the writer.

CASE REPORT

The patient was a Negro, male, age twenty-five.

Complaint.—Pain in lower abdomen; duration two weeks.

Present Illness.—For two weeks prior to admission to the hospital patient had pain in the right lower abdominal quadrant. The pain had been moderate and remained localized there. It was of a dull character and rather constant than intermittent. About twenty-four hours before admission patient had an increase in the severity of the pain. By keeping his thighs flexed he was able to obtain partial relief from the pain. He went to bed at the usual time but the pain had increased to such an extent as to keep him awake. He became nauseated and vomited once. Bowel movements normal and regular. Patient gave history of an untreated penile lesion several years previously which lasted two weeks. Except for a slight cough of two weeks duration there were no other symptoms.

Physical Examination.—Patient appeared acutely ill. Temperature 98.2, pulse forty-eight, respirations twenty, blood pressure 110/80. Slight injection of pharynx. Heart and lungs normal. Abdomen flat. No visible peristalsis. Increased muscle tonus over right rectus, especially the lower portion. Generalized tenderness with most marked tenderness in the right lower quadrant. Rebound tenderness and also hyperæsthesia were present in this area. Rectal examination revealed a normal prostate and rectum. There was some tenderness high in the right side of the pelvis.

Laboratory Findings.—Urinalysis normal. WBC 8,300. Neutrophiles 84 per cent. Wassermann negative.

A *diagnosis* of acute appendicitis was made.

Operation.—A Davis incision was made. The omentum and cæcum were found adherent to the anterior and lateral abdominal walls and could not be delivered into the wound. The incision was extended and with the greatest of difficulty adhesions were freed sufficiently to deliver the cæcum. A fibrous cord about a quarter inch in diameter was found running across the base of the cæcum which was thought to be the appendix but further dissection revealed it to be the right obliterated umbilical artery. In dissecting the adhesions to expose the appendix, an area of induration was found near the ileo-cecal junction which felt almost like cartilage. In separating this area of adhesions a fish-bone was found perforating the caecum. A small fibrotic appendix was found and removed. Abdomen was closed with one cigarette drain. Prompt and complete recovery followed operation.

After discovery of the fish-bone perforating the gut, the patient was quizzed further and the following information obtained: Three days before the onset of symptoms patient had been eating a fish sandwich when a bone became lodged in his throat. He could not remove or cough up the bone so he ate some dry bread and succeeded in swallowing it.

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New York Avenue, bet. 17th and 18th Streets.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for the month of January, shows the following cases compared with the same month in 1938:

	1939	*1938*
Typhoid and paratyphoid fever	11	18
Diphtheria	88	86
Scarlet fever	160	196
Measles	329	1,493
Meningitis	9	15
Poliomyelitis	2	1
Rocky Mountain spotted fever	0	0
Typhus fever	0	0
Undulant fever	1	7
Tularemia	10	16

PNEUMONIA TYPING STATIONS AND THERAPEUTIC SERA DEPOTS

In cooperation with the Pneumonia Commission of the Medical Society of Virginia, the Virginia Department of Health has established agreements with twenty-nine laboratories throughout the State to serve as typing stations and depots of therapeutic sera for cases of pneumococcic pneumonia. The objective of this plan is to provide this service within a twenty-five to thirty mile radius of every community. The selection of individual laboratories has been determined by their geographical location and the availability of facilities for performing the work. Because of limited funds, it would be impossible to include every laboratory now performing this examination in the present arrangements, nor is it to be inferred that the present list of laboratories designated as approved typing stations are recommended by the Department as the only institutions qualified to render this service or even those of choice. In regard to the larger independent cities, agreements have been establishd in some of them with their full-time health departments, where such departments exist. The central laboratory of this Department in Richmond, and the branch laboratories located at Norton, Abingdon, and Luray, are included in the present arrangement.

The present laboratories participating in this plan have been approved on the following conditions: adequate laboratory facilities for the performance of the Neufeld Test, one or more qualified full-time technicians trained in the performance of this test, and adequate refrigeration for the storage of therapeutic serum. With the exception of those laboratories directly under the supervision of this Department, in which all examinations are performed without charge, the fee for the typing service has been left entirely up to the individual stations for those patients financially able to pay. Sputa from indigent cases, however, is accepted and examined without charge.

Containers for the collection of specimens of sputa may be obtained from each of the typing stations or from the local health departments. These containers cannot be mailed and must be carried in person or by messenger to the laboratory for examination.

The Virginia Department of Health does not advocate or recommend any particular brand of antipneumococcic serum. However, through agreement with the Gilliland Laboratories, licensed by the

PNEUMONIA TYPING STATIONS
Cooperating with the Virginia Department of Health

Abingdon	Washington County	District Laboratory
Arlington	Arlington County	Arlington County Health Department
Charlottesville	Albemarle County	University of Virginia Hospital
Christiansburg	Montgomery County	New Altamont Hospital
Clifton Forge	Alleghany County	Clifton Forge Hospital
Danville	Pittsylvania County	Danville City Health Department
Farmville	Prince Edward County	Southside Community Hospital
Franklin	Southampton County	Raiford Hospital
Fredericksburg*	Spotsylvania County	Mary Washington Hospital
Galax	Grayson County	Galax Hospital and Clinic
Harrisonburg	Rockingham County	Rockingham Memorial Hospital
Kenbridge	Lunenburg County	Freeman, Kendig and Showalter Clinic
Lexington	Rockbridge County	Jackson Memorial Hospital
Luray	Page County	District Laboratory
Lynchburg	Campbell County	Lynchburg City Health Department
Marion	Smyth County	Southwestern State Hospital
Martinsville	Henry County	Shackelford Hospital
Nassawadox	Northampton County	Northampton-Accomac Memorial Hospital
Norfolk	Norfolk County	Norfolk City Health Department
Norton	Wise County	District Laboratory
Pennington Gap	Lee County	Lee General Hospital
Pulaski	Pulaski County	Pulaski Hospital, Inc.
Richlands	Tazewell County	Mattie Williams Hospital
Richmond	Henrico County	State Laboratory
Roanoke	Roanoke County	Roanoke City Health Department
South Boston	Halifax County	South Boston Hospital
Staunton	Augusta County	King's Daughters' Hospital
Suffolk	Nansemond County	Lakeview Hospital
Winchester	Frederick County	Winchester Memorial Hospital

*Service will be available within 60 days.

This list is not intended as a complete roster of all laboratories now engaged in the typing of pneumonia, but includes only those selected by reason of geographical location to provide this service to all areas of the State.

National Institute of Health, therapeutic serum will be carried in each of the typing stations for distribution to the physicians at the same price for which these products are distributed from the Department in Richmond. Antipneumococcic (horse) serum for Types I and II is available in 10,000 unit packages at $3.00, and in 20,000 unit packages for $6.00. Antipneumococcic (rabbit) serum for Types I, II, V, VII, VIII, and XIV in 20,000 unit packages is available at $6.75 per package. As sera for other types are made available by this laboratory, they will be announced and supplied according to contract price. At present sera for several types other than those mentioned may be obtained from other biological houses and their distributors.

Woman's Auxiliary to the Medical Society of Virginia

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Petersburg Medical Auxiliary.

Plans for the annual linen shower for Petersburg Hospital were completed when the local Medical Auxiliary met in the home of the president, Mrs. Allen Barker, for its monthly meeting.

Mrs. Herbert Jones, chairman of the linen shower, announced that her committee was organized and giving splendid reports as to the interest shown in this event which will be held February 28. The chairman also reported that speakers would be furnished any group or organization wishing further information at any time and requested that she be notified if speakers were wanted in order that arrangements might be made in advance.

Two local stores have hospital supplies which will be most acceptable for this shower on display tables and have offered to keep these tables open with articles at the special rates given for this purpose until the day of the shower. A special shipment of hospital towels has been ordered to be made up by one of these stores and all needed supplies are on sale at this time.

After the business session of the Medical Auxiliary meeting, the program chairman introduced Mrs. Wright Clarkson, who gave a most splendid book review of the life of a famous woman surgeon, Rosalie Slaughter Morton. This noted physician, whose father was from Lynchburg, began her early school days there, later studying medicine at the University of Pennsylvania, in Berlin, Vienna, Paris, London, Ceylon and India. Later she established herself with unusual success as a surgeon, practicing in Washington, in New York City and in Winter Park, Fla., where she now lives. Dr. Morton has received eight decorations for distinguished service in this country and abroad. Mrs. Clarkson mentioned the fact that this well known surgeon has many close friends in Petersburg, having visited here in the homes of the Mahones, McGills, Masons and other families.

The chairman of the Memorial Bed, which is supported at Blue Ridge Sanatorium in memory of three late members of the State Auxiliary Advisory Council, Drs. Leigh, Hodges and F. J. Wright, stated that in addition to the quota assigned this auxiliary as its part in the upkeep of this memorial fund, two magazines had been sent the patients at Christmas by local physicians, not associated with the auxiliary, and of a special contribution made for this cause by a friend in memory of her local physician.

At the close of the meeting tea was served by Mrs. Barker to the following: Mrs. Wright Clarkson, Mrs. Philip Jacobson, Mrs. Munford Yates, Mrs. Herbert Jones, Mrs. E. J. Nixon, Mrs. H. M. Snead, Mrs. H. Cantor, Mrs. Meade Edmunds, Mrs. W. B. McIlwaine, Mrs. J. A. Pilout and Mrs. F. J. Wright. Miss Alice Taylor, a guest, was invited to join the auxiliary, since wives, mothers and sisters of physicians are eligible to membership.

(MRS. F. J.) ANNE P. WRIGHT.

The Auxiliary of James City County-Williamsburg Medical Society

Met at the home of Mrs. Frederick R. Person, the new President, on Tuesday, January 10. Nine members were present. Old and new business was discussed, after which the program chairman, Mrs. J. B. Porterfield, took charge of the meeting. Since Socialized Medicine is holding the spotlight at the present time, Mrs. Porterfield decided to have the

view of several medical men and laymen presented to the Auxiliary during the year. Dr. E. B. Kilby, of Toano, in an interesting and helpful way, gave the viewpoint of the average practicing physician. A delightful social hour followed adjournment of meeting.

(MRS. L. V.) MABEL R. HENDERSON.

The Woman's Auxiliary to the Northampton-Accomac Medical Societies

Held its first meeting of the new year on January 3, at the home of the President, Mrs. J. Fred Edmonds, in Accomac.

A large benefit card party was planned for early Spring for Auxiliary funds to be used for the Northampton-Accomac Memorial Hospital at Nassawadox for general expenses.

A donation was made toward the maintenance of a bed at Catawba Sanatorium, and a gift of chairs for patients' rooms at the local hospital was announced.

The April meeting is to be held at "Stockley", the home of Mrs. G. W. Holland at Eastville.

At the conclusion of the meeting, Mrs. Edmonds' mother, Mrs. Dunaway, presided at a beautifully appointed tea table. There were fourteen members present.

CATHERINE R. TROWER,
(MRS. HOLLAND TROWER),
Chairman, Press and Publicity.

The Woman's Auxiliary to the Richmond Academy of Medicine

Held its first meeting of the year on February 24, in the Academy of Medicine Building, with the new President, Mrs. James K. Hall, presiding. Plans for the annual card party were presented by Mrs. A. I. Dodson, Philanthropy chairman. Other reports were also heard and several projects for the work of the year were discussed. Mrs. Hall had charge of the program for the day and read an article on "George Washington—A Clinical Sketch".

New officers of this Auxiliary are: President, Mrs. James K. Hall; president elect, Mrs. Lawrence O. Snead; vice-president, Mrs. Harvey Haag; recording secretary, Mrs. Lee E. Sutton; corresponding secretary, Mrs. Austin I. Dodson; and treasurer, Mrs. J. O. Fitzgerald. Mrs. Snead, Mrs. Haag and Mrs. Dodson automatically became Membership, Program, and Philanthropy chairmen, respectively, and Mrs. Hall appointed Mrs. Angus Nichols, Jr., as Press and Publicity chairman.

Radio Health Broadcasts.

March 1—*Diabetes*—Individual efforts plus medical aid win against diabetes.

March 8—*Community Health*—Water, waste and sanitation. Importance of community control of water supplies, sewage disposal and general sanitary matters.

March 15—*Guarding Fresh Foods*—What the community can and must do to protect fresh foods, such as fish, fruits, vegetables, meats, bakery goods.

March 22—*Auditing the Health Record*—The meaning and the importance of vital statistics, contagious disease reporting and community health records.

March 29—*Animal Diseases Transmitted to Man*—Rabbit fever, rabies, undulant fever and similar infections, and what can be done about them.

Legislation.

The National Chairman of Legislation has requested the following information of the Auxiliary to the Medical Society:

"How many groups are studying pending legislation, either Federal or State?" "How many are studying Socialized Medicine?"

Will the Program Chairmen of branches in Virginia kindly send this information to Mrs. P. M. Chichester, 3309 Kensington Avenue, Richmond.

Truth About Medicine

In addition to the articles previously enumerated the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

The Upjohn Company

Epinephrine Powder—U.S.P., 0.065 Gm. (1 gr.)—Upjohn
Solution Epinephrine 1:1000—Upjohn

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Diphtheria Toxin Diluted for Schick Test (New and Nonofficial Remedies, 1938, p. 435).—This product is also marketed in packages of one vial containing 5 cc. of diluted diphtheria toxin, sufficient for fifty tests. Parke, Davis & Co., Detroit.

Iron and Ammonium Citrates.—"Contains ferric citrate equivalent to not less than 16.5 per cent and not more than 18.5 per cent of fe" U.S.P. For actions and uses of this product see general article Iron and Iron Compounds,

New and Nonofficial Remedies, 1938, p. 279. It is supplied in the form of capsules 0.5 Gm. (7½ grains). The Upjohn Co., Kalamazoo, Mich.

Whole Leaf Tablets Digitalis "Haskell," 1½ grains.—Each tablet contains one cat unit digitalis (New and Nonofficial Remedies, 1938, p. 186). Charles C. Haskell & Co., Inc., Richmond, Va.

Ampoule Solution Iron and Ammonium Citrates Green, 0.05 Gm. (¾ grain), 1 cc.—Each cubic centimeter contains green iron and ammonium citrates—U.S.P. (New and Nonofficial Remedies, 1938, p. 281) 0.05 Gm., and quinine and urea hydrochloride—U.S.P., 0.005 Gm., in aqueous solution. The Upjohn Co., Kalamazoo, Mich.

Ampoule Solution Iron and Ammonium Citrates Green, 0.1 Gm. (1½ grains), 1 cc.—Each cubic centimeter contains green iron and ammonium citrates—U.S.P. (New and Nonofficial Remedies, 1938, p. 281) 0.1 Gm., and quinine and urea hydochloride—U.S.P. 0.005 Gm., in aqueous solution. The Upjohn Co., Kalamazoo, Mich.

Carbromal Tablets, 5 grains.—Each tablet contains carbromal (New and Nonofficial Remedies, 1938, p. 155) 5 grains. The Upjohn Co., Kalamazoo, Mich. (*J. A. M. A.*, January 7, 1939, p. 49.)

Hypodermic Tablets Strophanthin 1/200 grain—Upjohn.—Physiologically standardized by the Magnus modification of the Hatcher and Brody method to contain approximately 1.5 cat units strophanthin (New and Nonofficial Remedies, 1938, p. 200). The Upjohn Co., Kalamazoo, Mich.

Solution Pituitary Extract—U.S.P. (Upjohn). A brand of solution of pituitary—U.S.P. (New and Nonofficial Remedies, 1938, p. 350). It is supplied in the form of ampoules ½ cc. and 1 cc. The Upjohn Co., Kalamazoo, Mich. (*J. A. M. A.*, January 14, 1939, p. 145.)

Antipneumococcic Serum, Refined and Concentrated, Type I.—Prepared by immunizing horses with intravenous injections of the virulent and avirulent cultures of type I and type II pneumococci. The serum is refined and concentrated by the method of Lloyd D. Felton. Sterility tests are carried out in the manner prescribed by the National Institute of Health and safety tests are carried out by injection into white mice and guinea pigs. The product is marketed in packages of one syringe containing 10,000 units and in packages of one syringe containing 20,000 units, each accompanied by a vial of dilute serum (1:10) for the sensitivity test. Gilliland Laboratories, Inc., Marietta, Pa. (*J. A. M. A.*, January 28, 1939, p. 329.)

Propaganda for Reform

Drugs in Treatment of Arthritis.—The Council on Pharmacy and Chemistry in its report on colloidal sulfur in the treatment of arthritis points out that before acceptance satisfactory evidence must be produced that sufficient controls have been employed and that follow-up periods of sufficient length to rule out spontaneous remissions have been observed. Further, the types of cases in which the preparation may be used with a fair expectation of benefit must be determined and the chief contraindications, optimal dosage and best form and route for use must be defined. These criteria as outlined for sulfur therapy in arthritis could well be employed in assessing the value of any other of the many drugs employed in this chronic and clinically variable disease. While considerable skepticism as to the value of colloidal sulfur in arthritis has previously been expressed elsewhere, this report of the Council should serve to crystallize the objections to accepting this form of therapy as in any way scientifically established. (*J. A. M. A.*, October 29, 1938, p. 1662.)

The Present Status of Immune Globulin (Human).—In 1935 the Council on Pharmacy and Chemistry reported (The *Journal A. M. A.*, August 17, 1935, p. 510) that although Immune Globulin (Human) appears to be a promising immunization agent, more evidence of its value is needed before it may be generally used by the medical profession. A study of the literature which has become available since that report was published indicates that the following points are of importance: 1. The use of the diphtheria antitoxin titer is entirely satisfactory as an adequate basis for determination of the measles immunizing potency of the preparations. 2. The degree of modification which is accomplished by the various immunizing preparations apparently determines whether or not a temporary or permanent immunity is conferred. 3. The reports seem to be about equally divided on the question of whether or not this immunizing agent is superior to convalescent serum. 4. It is as useful for the modification of measles in home cases as it is for prevention in institutional cases. 5. The reactions are not infrequent and not always mild following the use of this agent, and attempts to avoid them have included refinement and concentration as well as oral administration instead of injection of the immunizing agent. 6. The preparation has a greater availability than the other immunizing agents. 7. The advantages and disadvantages of immune globulin (human) as an immunizing agent in the prevention and modification of measles are at least equal to those of other preparations which have been used for a similar purpose. On the basis of its study of the further evidence for Immune Globulin (Human) the Council has voted to accept the product for inclusion in New and Nonofficial Remedies. (*J. A. M. A.*, November 5, 1938, p. 1764.)

Intranasal Medication.—Recently Walsh and Cannon (Ann. Otol., Rhin. & Laryng., 47:579 (September), 1938) reported that the intranasal administration of oily preparations, when given in large total amounts and over a long period to normal rabbits free from upper respiratory infections, seemed to initiate lesions in the lungs which could be demonstrated in roentgenograms. These investigators found that isotonic saline solutions containing such vasoconstrictors as ephedrine hydrochloride and neosynephrin hydrochloride did not cause pulmonary damage after intranasal instillation in normal rabbits. The observations of these workers and the reports of others point to the potential dangers of intranasal medication and to the tentative conclusion that the only completely safe intranasal medicaments are weak saline solutions of appropriate vasoconstrictors. (*J. A. M. A.*, November 5, 1938, p. 1770.)

Book Announcements

Anus, Rectum, Sigmoid Colon. Diagnosis and Treatment. By HARRY ELLICOTT BACON, B. S., M. D., F. A. C. S., F. A. P. S., Assistant Professor of Proctology, Temple University School of Medicine; Assistant Professor of Proctology, Graduate School of Medicine, University of Pennsylvania; Visiting Proctologist, St. Luke's and Children's Hospital; Proctologist, National Stomach Hospital; etc. Introduction by W. Wayne Babcock, A. M., M. D., LL. D., F. A. C. S., Professor of Surgery, Temple University School of Medicine. Foreword by J. P. Lockhart-Mummery, M. A., M. B., B. C. (Cantab), F. R. C. S. (Eng.), Emeritus Surgeon, St. Mark's Hospital, London, England. J. B. Lippincott Company. Philadelphia, 1938. Octavo of xxiv-855 pages. 487 Illustrations in the text mostly original by William Brown McNett. Cloth. Price, $8.50.

Dr. Bacon's book is excellently conceived. It is simple and easy to read and above all its descriptions are lucid and to the point. It is a complete work for the student adequately covering all phases of the subject, and though tiresome detail is avoided it will serve as an excellent reference for the practitioner or specialist.

The confusing anatomy is most comprehensively presented. The chapters on the infections, fissure, abscesses, fistulae, proctitis and venereal diseases are good.

The literature has been carefully gleaned for advances in conception of entities and their treatment. Authorities are freely quoted and credit given them.

The work contains numerous illustrations most of which are original and appear in print for the first time.

Dr. Bacon's timely book will have served its purpose if it does no more than open the eyes of the profession to the vastness of the subject and the relationship of proctologic syndromes to the patient in general.

ROBERT V. TERRELL.

Interns Handbook. A Guide, Especially in Emergencies, for the Intern and the Physician in General Practice. By Members of the Faculty of the College of Medicine Syracuse University. Under the Direction of M. S. DOOLEY, A. B., M. D., Chairman Publication Committee. Second Edition, Revised and Reset. Philadelphia. J. B. Lippincott Company. 1938. 12mo of xv-523 pages. Cloth. Price, $3.00.

Practical guides for the interns are exceedingly rare. They are either so voluminous that their use is discouraging or so lacking in necessary detail that they are of little value. This handbook overcomes both faults. It is small enough to carry, 4½x7x¾ inches, and yet contains over 500 pages of information.

Methods taught in isolated sections during student days are again set down in detail under usable classifications for emergency reference. Normal physico-chemical values are given with leads as to the cause of their variation. So-called "routine" examinations are described in detail so that the word "routine" is given meaning. Medical, pediatric, psychiatric histories and examinations are outlined in detail. Surgical procedures are given with a personal clarity. Anesthesia, dietetics and nursing procedures together with legal and ethical customs are given appropriate space. Emergency differential diagnoses and immediate treatment are clearly and tersely summarized. Warning is given against the "cook-book" attitude even as its recipes are stated.

For the intern in the large teaching hospital it will crystallize his daily experience and guide his assimilation of it; to the intern of the smaller institution it will be a teacher; and to the general practitioner a valuable reference.

JOHN P. LYNCH.

Scarlet Fever. By GEORGE F. DICK, M.D., D.Sc., Professor of Medicine, University of Chicago; Attending Physician, Billings Memorial Hospital; etc. And GLADYS HENRY DICK, M.D., D.Sc. The Year Book Publishers, Inc, Chicago, Illinois. 1938. Octavo of 149 pages. Cloth.

There is still a thought in many minds that scarlet fever is a disease of very little, if any, consequence. In a brief review the little book by the Drs. Dick, entitled, "Scarlet Fever", one soon learns of the serious nature of this disease as well as of its complications.

Scarlet Fever has existed since the earliest times. From a historical point of view, it was distinguished from others of the acute exanthems by Sydenham in the latter part of the 17th century. The etiology, symptoms and complications are carefully covered in a concise, readable form, as is also the diagnosis, prognosis and treatment. There are chapters covering the preparation of the serum and antitoxin skin tests and susceptibility. This valuable treatise should be read and kept handy for all of those who see scarlet fever, whether in private practice or public health. I cannot recommend it too highly and I am sure the authors' statements can be taken authoritatively.

C. L. OUTLAND.

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Editorial

The Dean is Dead.

Dr. J. C. Flippin died suddenly on February 16, 1939. In his death the University of Virginia and the medical profession of the State of Virginia lost more than a clinical professor of medicine, more than an astute and honored internist, more than a medical statesman possessed of penetrating insight into the socio-economic problems of modern medical practice. In these capacities he can perhaps be replaced more easily than in his capacity of Dean of the School of Medicine.

Dean of Medicine. Not a puppet, not a figurehead, not a rubber stamp, not a scapegoat, not a registration bureau for new students, not an official desk for recording complaints, not a functionary to represent a department at meetings, not a passer-out of diplomas on graduation day, not a dispenser of parliamentary rules at faculty meetings, but a dean, a man of dignity and presence, of worth, of sagacity and of force, a man of large and contagious ideals who possessed the will and the way to make his ideals effective.

He was a man who knew the trends in medical education: the emphasis that was being put on the arts in premedical training and the tendency to place anatomy and bacteriology along with chemistry, physics and biology as the basic sciences to be mastered before undertaking the medical curriculum; the wider application of aptitude tests in the selection of matriculates in medicine; the overcrowding of the curriculum and excessive departmentalization with resultant demoralizing emphasis on the specialties; the growth of therapeutic nihilism; the abdication of logic in medical teaching in favor of a technique calculated to produce skilled professional imitators; the confusion of values, scientific and human, and the general tendency of medical schools to produce too many graduates and too few doctors. Conversant with all these tendencies, he steered a wise middle course. Holding fast to the best of the old, he was quick to adopt the best of the new.

They'll be missing you, Mr. Dean, those lads who found in your kindly smile and helpful counsel constant inspiration as they climbed the steep ascents of knowledge. They'll be missing you in classroom and ward, where your clear and practiced mind made plain many knotty problems. In the faculty, too, you will be missed, you who gave purpose and continuity to collective teaching, held many minds to one task, stifled petty bickering, gave all an equal hearing, stood calm and useful and unafraid and lived to see in your time medical teaching in Charlottesville quicken its pace and extend its stakes more than in all the previous history of the University of Virginia. May your work go on and a successor measuring up to the stature of your manhood be found.

Boerhaave.

It is said that during his lifetime a letter mailed in China directed to "The Greatest Doctor in the World" was taken straight to the door of Herman Boerhaave on the Rapenburg in Leyden. It is now two hundred years since the birth of Holland's greatest doctor and a few months ago the University of Leyden and various Dutch medical organizations celebrated it in ceremonies featured by a two days' pilgrimage to his birth place in Voorhout, to the Academy of Harderwijk where he got his degree, to his old wards in St. Caecilia Gasthuis, to the classrooms where he taught at the University of Leyden, to his residence and to his monument in Leyden and to his tomb in St. Pieterskerk. The Dutch appreciate their clinical genius and seem to know how to celebrate the birthday of a national figure. One toys with the idea that there is some connection between the Dutch people's exaltation of peace time heroes and their ability to remain outside the warlike endeavors of surrounding nations.

Pneumonia Typing Stations.

Elsewhere in this issue of the VIRGINIA MEDICAL MONTHLY we publish a list of approved pneumonia typing stations. The list has been prepared by the State Department of Health and is the result of many months of real work on the part of its retiring epidemiologist, Dr. G. F. McGinnis. It marks the passage of a mile stone in the program of the Virginia Pneumonia Commission because until efficient and accessible typing stations were made available to all doctors of the State the more general use of antipneumococcic serum by the profession of the State was impossible.

Inspection of this list of typing stations will show that they have been located equidistantly over the State. In fact they have been so placed that with few exceptions no doctor in the State is further than twenty-five miles from these laboratory facilities.

All of these stations have been twice inspected by the Department of Health and the stamp of approval has been placed upon them only after their demonstration of ability satisfactorily to carry through the typing technique. The Department of Health has generously and wisely adopted the policy of offering training courses for all technicians desiring to master the Neufeld procedure. In a number of instances advantage has been taken of this opportunity. It is understood that the Department of Health will continue to train technicians who apply.

In the cities typing stations have not been set up outside the branch laboratories of the Department of Health. This brings up the question of how laboratories, especially those in the cities, may be placed upon the approved list. The procedure is a simple one. On application to the Board of Health inspection of the facilities of any laboratory will be made and if it measures up to recognized standards of excellence approval will be forthcoming. It is assumed that a large number of laboratories in Virginia will take steps to place themselves on the approved list.

Dr. McGinnis who has recently resigned from the State Department of Health to accept important responsibilities elsewhere has made fine and lasting contributions to the work of Pneumonia Control in Virginia. He will be missed.

Department of Clinical and Medical Education of the Medical Society of Virginia

Executive Committee.

A meeting of the Executive Committee, held in Richmond on January 17, was attended by Dr. G. F. Simpson, Chairman, Dr. Lee Sutton, Dr. I. C. Riggin, Dr. E. L. Alexander, and Mr. G. B. Zehmer, Executive Secretary. The resignation of Dr. Robert B. Hightower, Instructor in Pediatrics, was received and accepted. In accepting Dr. Hightower's resignation the committee expressed its high appreciation of the quality of his instruction and of the valuable contribution he has made to the cause of postgraduate medical instruction in Virginia. Dr. Hightower's resignation was made effective as of February 1, 1939, in order that he might accept appointment as Assistant Director of School Medical Inspection for the District of Columbia.

It was decided to accept the invitation of the American Medical Association to present an exhibit

of the work of the Department of Clinical and Medical Education at the St. Louis meeting on May 15 to 19, 1939.

Internal Medicine.

For the information of local societies that may wish to undertake a postgraduate course in Internal Medicine, we wish to give a brief statement of the usual procedure that is followed.

When the Executive Secretary receives a request for information from a local society the following information is given in reply:

1. Courses of from five to ten discussions can be arranged if the local society will cooperate in enrolling members and making local arrangements.

2. The cost of the course will vary from five dollars to ten dollars per doctor, depending upon the number of meetings, the distance travelled by the speakers, and the number enrolled for the course.

3. A list of suggestive topics and speakers is submitted to which the local society is requested to add subjects and speakers of their own choice. A selection is then made by the local society of the topics they wish treated.

4. The speakers are usually obtained from the faculties of the University of Virginia Medical School or the Medical College of Virginia. Occasionally, however, a practicing physician from another state may be obtained.

5. The usual procedure will be for the guest speaker to devote about forty minutes to the presentation of a prepared paper. This will be followed by a clinic or, where clinical cases are not available, case histories will be presented for discussion. Oral and written questions will be invited at this time. The entire discussion should not consume more than two hours.

6. A local committee should be appointed to see that clinical cases are provided or case histories are presented at each meeting.

7. When topics have been selected by the local society, the Executive Secretary will then proceed to engage speakers, mail a printed program to local doctors, and make other necessary arrangements for the course.

Arrangements have been made under this procedure for courses to be held as follows:

ALEXANDRIA

February 24—Urological Problems in Children—Dr. Charles Howze, Washington, D. C.

March 3—Diseases of the Thyroid, Suprarenal and Parathyroid Glands—Dr. H. B. Mulholland, University of Virginia.

March 10—Chronic Rheumatism—Dr. Oscar Swineford, University of Virginia.

March 17—Gynecological Problems in Office Practice—Dr. Stuart Michaux, Medical College of Virginia.

March 24—Clinical Acidosis, Alkalosis, and Dehydration—Dr. H. B. Mulholland, University of Virginia.

LYNCHBURG

This course will begin on April 7 and continue through June 9.

MARTINSVILLE

This course will begin on March 7 and continue through April 7. Complete programs for the Lynchburg and Martinsville courses will be announced in the next issue of the VIRGINIA MEDICAL MONTHLY.

St. Louis Exhibit.

It has been decided to present an exhibit of Post-Graduate Medical Instruction in Virginia at the meeting of the American Medical Association in May. For this purpose the Executive Secretary wishes to receive any photographs available of groups that have been met by any of the instructors from the Department of Clinical and Medical Education. If you know of any such photographs please notify the Executive Secretary at once. Suggestions will be welcomed from all sources. Present plans call for an exhibit of photographs; graphs showing enrollments, attendance, etc.; maps showing location of courses, mimeographed notes of instructors, and similar materials.

GEORGE B. ZEHMER,
Executive Secretary.

Proceedings of Societies

Warwick County Medical Society.

Dr. Thomas N. Spessard, formerly of Roanoke but now associated with Dr. Frank Redwood of Norfolk in the practice of neurosurgery and neuropsychiatry, was the guest speaker before this Society at its regular meeting on February 6, his subject being "Intracranial Hemorrhage, Diagnosis and Treatment". There were thirty members and visitors in attendance.

Dr. E. B. Mewborne and Dr. Orvin C. Jones, both of Newport News, are the new president and secretary, respectively, of this society, and Dr. T. C. Lawford of Hilton Village is vice-president.

The Danville-Pittsylvania Academy of Medicine

Held a dinner meeting on February 14, at which time Dr. Oscar Swineford, of the University of Virginia, presented a paper on "The Pathologic Physiology and Manifestation of Allergic Diseases."

The next meeting of the Academy will be held on March 14. Dr. E. C. Hamblen from Duke Medical School, Durham, N. C., will speak on "Endocrine Disturbances and Present Day Endocrine Therapy" and Dr. C. P. Mangum, Richmond, on "Pediatric Endocrinology."

SNOWDEN C. HALL, JR.,
Secretary.

The Pittsylvania County Division

Of the Danville-Pittsylvania Academy of Medicine, at a meeting on January 26, elected Dr. H. H. Hammer and Dr. Girard V. Thompson, both of Chatham, as President and Secretary-Treasurer, respectively.

The Roanoke Academy of Medicine

Held its regular meeting on February 6, with the following scientific program: Post-Operative Thrombophlebitis by Dr. Henry Lee; and The Diagnosis and Treatment of Peripheral Vascular Diseases by Dr. Beverly C. Smith, Associate in Surgery, College of Physicians and Surgeons of Columbia University, New York City.

The Mid-Tidewater Medical Society

Met on January 24 at West Point, with Dr. J. R. Parker, President, presiding.

At the morning session, papers were presented by Dr. Paul C. Pearson, Venter, on "Spinal Puncture in the Treatment of Hypertension Due to Nephritis" and Dr. D. G. Chapman, Richmond, on "Treatment and Diagnosis of Lobar Pneumonia". Following this session, the society and guests were entertained at luncheon at the York Inn by the local committee, composed of Drs. W. S. Cox, chairman, U. H. Johnson, M. H. Harris, and J. R. Parker.

In the afternoon, papers were read by the following Richmond doctors: Dr. L. T. Price on "The Diagnosis of Syphilis"; Dr. T. Dewey Davis on "Pathology with Especial Reference to Syphilis of the Circulatory System"; Dr. Charles M. Nelson on "Treatment of Syphilis"; and Dr. O. L. Anderson, Chief of the Venereal Disease Control Commission of the State Department of Health, on "Syphilis and Public Health". Dr. J. M. Hutcheson, also of Richmond, opened the discussion.

Among the members and guests, in addition to those on the program, were Drs. F. S. Johns, William Johns, W. W. Rixey, Guy Horsley, J. P. Lynch, Kinloch Nelson, H. U. Stephenson, and Reuben F. Simms, from Richmond; Dr. Wright Clarkson from Petersburg; Dr. J. W. Smith, Hayes Store, Drs. H. A. Tabb and W. H. Springall, Gloucester; Dr. N. D. Nelms, Mathews; and Dr. R. D. Bates, Newtown.

The Woman's Auxiliary to the Mid-Tidewater Medical Society met on this date also at the home of Dr. and Mrs. M. H. Harris, and the visiting ladies were entertained by Mrs. W. S. Cox and Mrs. Harris.

Norfolk County Medical Society.

Dr. Russell L. Haden, Physician-in-Chief of the Cleveland Clinic, Cleveland, Ohio, spoke before this Society on January 30, on "Clinical Nutritional Deficiency Disease". He was an invited guest of the President, Dr. William B. Newcomb. After the meeting, the entire Society was entertained by Dr. Newcomb, at the Town Club, in honor of Dr. Haden.

The Augusta County Medical Society

Held its regular quarterly meeting in Staunton, on February 1, with the President, Dr. W. M. Phelps, presiding. There was an attendance of about

fifty members and guests. The scientific program was a symposium on "Problems of Adequate Medical Care in Augusta County and Staunton". Those taking part were Drs. Alex. F. Robertson, I. M. Nuckols, H. G. Middlekauff, J. C. Neal, and C. W. Rodgers; Mrs. Mattie F. Rice; Mrs. R. R. Heydenreich, and Mr. Charles K. Brown.

Dr. Guy R. Fisher, Staunton, was in charge of the supper.

The Lynchburg Academy of Medicine

Held its regular meeting in the Elks' Club on February 6, at 8:00 P. M., with the President, Dr. Sam Oglesby, presiding.

Dr. C. K. Reinke, State Colony, Virginia, was admitted to membership as a transfer from the Chester County Medical Society.

Dr. Harper presented a very interesting, complete and thorough paper on "Health Insurance." Dr. John Hundley, Jr. presented the "A.M.A. Viewpoint." Due to the recent trend in medicine, the papers were keenly followed and widely discussed by the Academy.

Dr. Baynard Carter, Professor of Gynecology and Obstetrics at Duke University, will be the March guest speaker.

C. E. KEEFER, *Secretary-Treasurer.*

The Tidewater Surgical Club,

Organized in 1937, meets in the Norfolk County Medical Society Library on the first Thursday of each month, from October through June. Its meetings are characterized by round table discussions, a different member leading these at each meeting. Subjects discussed this year have been: Uterine Hemorrhage by Dr. Robert Matthews; Herniations of the Nucleus Pulposus by Dr. George A. Duncan; Treatment of Infection of the Urinary Tract by Dr. C. J. Devine; Treatment of Fractures by Dr. M. H. Todd; Surgery of Pulmonary Tuberculosis by Dr. C. Carroll Smith; and Intestinal Obstruction by Dr. Charles H. Lupton.

The officers of the Club are Dr. C. J. Devine, President; Dr. C. Carroll Smith, President-Elect; Dr. M. H. Todd, Vice-President; and Dr. Charles H. Lupton, Secretary-Treasurer. Drs. B. A. Doggett, N. F. Rodman, and R. B. Nicholls are members of the Executive Committee.

News Notes

Dates Selected for State Meeting.

The Council of the Medical Society of Virginia, at its meeting on February 16, selected October 3, 4, and 5 as the dates for the seventieth annual session of the Society in Richmond. As previously stated, the John Marshall will be hotel headquarters, and Dr. Roshier W. Miller, with an able corps of assistants, will have charge of local arrangements.

You are expected and wanted at this meeting, so mark the dates on your calendar now.

Cancer Committee, Medical Society of Virginia.

In accordance with action of the House of Delegates at its meeting in Danville, last Fall, Dr. Robertson, president, named a committee known as Advisory Committee to the Cancer Foundation. Recently, in the interest of unification of the cancer program in Virginia, he has enlarged the personnel and function of this committee, naming as chairman Dr. E. P. Lehman, who is also chairman for the Virginia section of the American Society for the Control of Cancer. Other members of this committee are: Drs. I. C. Riggin, I. A. Bigger, Fred Hodges, R. L. Payne, R. P. Bell and I. C. Harrison. Dr. Hugh Trout, president-elect, and Dr. Robertson will serve as *ex officio* members of the Committee, which will act in an advisory capacity to the Women's Field Army of the American Society for the Control of Cancer, to the Virginia Cancer Foundation, and to any other activities seeking advice or endorsement on this subject by the Medical Society of Virginia.

South Atlantic Association of Obstetricians and Gynecologists.

This Association, which was organized in Charlotte, N. C., last year, held its first annual meeting in Charleston, S. C., in February, under the presidency of Dr. James R. McCord of Atlanta, Ga. With the additions made this year, the Association now has a membership of ninety specialists from Virginia, the Carolinas, Georgia and Florida. In the election of officers, Dr. M. P. Rucker of Rich-

mond was named president-elect, and Dr. Robert A. Ross of Durham, N. C., was re-elected secretary-treasurer. Dr. Robert Seibels of Columbia, S. C., succeeded to the presidency. Richmond, Va., was selected as the 1940 place of meeting.

Are You Interested in Diabetes?

Dr. Priscilla White, of Boston, widely known for her work on Diabetes, will make an address on *Some of the Newer and Interesting Phases of Diabetes* at the Richmond Academy of Medicine Building, on Tuesday, March 7, at 8:30 P. M.

Dr. White is associated with Dr. Joslin of Boston; she is a polished public speaker, and is much in demand for talks on her chosen subject. She is the author of several books and many scientific articles on the various phases of Diabetes.

This address is sponsored by the local chapter of Alpha Epsilon Iota, National Fraternity of Medical Women. Dr. Regena C. Beck, Chairman, Publicity Committee, Pi Chapter, states that a cordial invitation to attend is extended to all members of the medical profession.

Medical College of Virginia News.

The annual Stuart McGuire Lectures will be held April 27-28. Dr. Wilder Penfield, head of the Montreal Neurological Institute, will be the McGuire lecturer this year. As usual the spring postgraduate clinics will be held in conjunction with the Stuart McGuire lectures. The program will be announced later.

Dr. Walter E. Vest, a graduate of the school of medicine, 1909, will be awarded the honorary degree of Doctor of Science at Commencement, June 6, 1939. Dr. Vest is well known throughout Virginia and West Virginia, being a Virginian by birth. At present he is internist at the Chesapeake and Ohio Railway Hospital, Huntington, West Va. Dr. Vest interned at Memorial Hospital and practiced in Virginia until 1916.

Dr. William T. Sanger, President, attended the annual meeting of the Council on Medical Education and Hospitals of the American Medical Association in Chicago, February 13 and 14.

Dr. Lewis E. Jarrett, Superintendent of the Hospital Division, and Mr. Eldon Roberts, Jr., associate in pharmacy, recently visited Western Reserve University.

At a recent meeting of the Board of Visitors it was voted that the new dormitory for students and internes be designated "Hunton Hall" in honor of the late Eppa Hunton, Jr., who was a member of the Board and its executive committee for many years. Mr. Hunton gave generously both of his time and money to the upbuilding of the college. At the same meeting it was voted that the dormitory for Negro nurses should be designated "Saint Philip Hall".

Mr. George H. Murrill, a graduate in Fine Arts, Yale University, has been appointed artist in residence under a grant from the Carnegie Corporation to execute a series of murals, and at the same time give an informal opportunity to students to see creative work in the process of execution and for discussing it with them as it progresses.

News from University of Virginia, Department of Medicine.

Dr. Louis Hamman, Professor of Medicine at the Johns Hopkins Medical School, delivered the second Alpha Omega Alpha lecture for the session before the students and faculty of the Medical School on the night of January 16. He spoke on the subject of As Others See Us.

At the meeting of the University of Virginia Medical Society on February 6 Dr. Harry F. Flippin, of Philadelphia, spoke on Sulf-Pyridine in the Treatment of Pneumonia.

On February 10, Dr. John Nokes addressed the South Atlantic Association of Obstetricians and Gynecologists on the subject of A Critical Analysis of Cesarean Section.

On February 3, Dr. John Moyer Meredith addressed the Rockbridge County Medical Society on the subject, The Diagnosis of Surgical Lesions in the Spinal Cord.

At the meeting of the University of Virginia Medical Society on February 13, Dr. Philip Bishop spoke on Lipoid Pneumonia.

Jefferson Medical College

Major General Merritte W. Ireland, U. S. A. retired, delivered the annual William Potter Memorial Lecture at the College on February 23. He spoke on "Medicine's Debt to the U. S. Army." General Ireland is one of Jefferson's most distinguished alumni, having been graduated with the class of

1891, and subsequently receiving an honorary LL.D. degree in 1919. He was Surgeon General of the Army during the World War.

The William Potter Memorial Lectures have been given annually since 1928 in honor of the man who served as President of the College Board of Trustees for twenty-nine years.

News from Duke University School of Medicine and Hospital.

On January 18 a Symposium on Pneumonia was held at the Hospital, to which the members of the medical profession and technicians were invited. Dr. Frederic M. Hanes, Professor of Medicine, gave a lecture on Pneumonia in Adults; Dr. Angus McBryde, Assistant Professor of Pediatrics, lectured on Pneumonia in Infants and Children, and a moving picture on The Diagnosis and Treatment of Pneumonia was shown, furnished through the courtesy of the Lederle Laboratories.

On February 8 Dr. Joseph Stokes, Jr., Associate Professor of Pediatrics, University of Pennsylvania School of Medicine, lectured to the staff and students on Viruses, and on February 14 Dr. A. Bruce Gill, Professor of Orthopedic Surgery, University of Pennsylvania School of Medicine, lectured on Open Reduction of Congenital Hip.

The American College of Physicians

Will hold its twenty-third annual session in New Orleans, March 27-31. Dr. William J. Kerr, of San Francisco, is President and will have charge of the program of general scientific sessions. Dr. John H. Musser of New Orleans is General Chairman of the Session, and is in charge of the program of clinics and demonstrations in the hospitals and medical schools and of the program of round table discussions to be conducted at the headquarters.

Dr. Julian L. Rawls,

Of Norfolk, was elected to membership on the board of trustees of the University of Richmond, at its semi-annual meeting in Richmond on February 1.

Birth.

Dr. and Mrs. Wilbur S. Stakes, Patchogue, N. Y., announce the birth of Wilbur Sylvester, Jr., on January 23. Dr. Stakes is a graduate of the Medical College of Virginia, class of '27.

The Richmond Tuberculosis Association,

At its meeting on February 7, re-elected Mr. Tennant Bryan as President. Dr. P. D. Lipscomb was re-elected first vice-president; Dr. Kinloch Nelson was named third vice-president; and Dr. Robert C. Bryan an honorary vice-president. Drs. S. A. Anderson, Jr., T. Dewey Davis, and Emily Gardner were re-elected to the Board of Directors, and Dr. D. D. Talley is a new member.

Syphilis Clinic to be Held at Duke Hospital.

A postgraduate clinic on the diagnosis and treatment of syphilis will be held at Duke University on March 24-25, sponsored by the North Carolina state board of health and the university.

Principal speakers to appear on the program will be Dr. Thomas Parran, surgeon general of the U. S. Public Health Service; Dr. John H. Stokes, Duhring professor of dermatology and syphilology at the University of Pennsylvania; Dr. Joe Earle Moore, associate in medicine and chief of the syphilis division at Johns Hopkins hospital; Dr. Harold N. Cole, professor of dermatology and syphilology at Western Reserve university; Dr. Paul O'Leary, chief of the section of dermatology and syphilology at the Mayo clinic; Dr. P. C. Jeans, professor of pediatrics at the University of Iowa; and Dr. Norman R. Ingraham, associate in dermatology and syphilology at the University of Pennsylvania.

Each of the sessions will be followed by round table discussions, led by North Carolina health officers and medical leaders. Dr. J. Lamar Callaway, of Duke medical school, will preside at the opening session, with Dr. W. P. Richardson, district health officer, of Chapel Hill, leading the round table.

Dr. William deB. MacNider, of the University of North Carolina, will preside over the first afternoon's session, and the round table will be led by Dr. Roy Norton, of the University of North Carolina school of public health, Dr. Carl V. Reynolds, superintendent of the state board of health will preside over the evening program, at which Dr. Parran is to speak. Dean W. C. Davison of the Duke medical school will preside over the concluding session on the morning of the second day, and Dr. E. R. Hardin, health officer of Lumberton, will lead the round table.

Dr. M. M. Wintrobe,

Assistant professor of medicine and director of the section on hematology at Johns Hopkins University Medical School, Baltimore, was the guest speaker before the Richmond Academy of Medicine on Feb-

ruary 14, his subject being The Choice of Methods for the Correction of Anemia and Why.

Dr. M. Cohen,

An alumnus of the Medical College of Virginia, class of '31, is resident in radiology at Parkland Hospital, Dallas, Texas. Prior to accepting this position, he completed an eighteen months' post-graduate course in this subject at the University of Pennsylvania Graduate School of Medicine.

Married.

Dr. Jesse M. Shackelford and Miss Bertha Bowles, both of Martinsville, February 9.

Dr. Edgar Bryan Quarles, class of '37, Medical College of Virginia, and Miss Ruth Brookins, Gloversville, N. Y. Dr. and Mrs. Quarles are making their home in America, Ala.

The American College of Surgeons

Will hold its annual Clinical Congress at the Bellevue Stratford Hotel, Philadelphia, October 16-20.

The following are other dates of meetings scheduled to be held by the College during 1939:

March 15-17—Lord Baltimore Hotel, Baltimore. Participating States: Maryland, Virginia, West Virginia, District of Columbia, New Jersey, Delaware, Pennsylvania, North Carolina, and South Carolina.

March 22-24—Claypool Hotel, Indianapolis.

March 29-31—Fort Garry Hotel, Winnipeg.

American Public Health Association.

The annual meeting of this Association will be held in Pittsburgh, October 17-20, with headquarters at the William Penn Hotel. Dr. Reginald M. Atwater, New York, is executive secretary of the Association, and Dr. I. Hope Alexander, Director of Health of Pittsburgh, has been named as chairman of the local committee.

Van Meter Prize Award.

The American Association for the Study of Goiter again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meeting of the Association which will be held in Cincinnati, Ohio, May 22-24, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double spaced copy sent to the Corresponding Secretary, Dr. W. Blair Mosser, Kane, Pennsylvania, not later than April 15, 1939. The Committee, who will review the manuscripts, is composed of men well qualified to judge the merits of the competing essays.

Dr. James Q. Gant,

Medical College of Virginia, class of '35, is now with the U. S. Public Health Service and is located at the Glynn County Health Department, Brunswick, Ga., in connection with syphilis control work.

Virginians Elected to Membership in American College of Physicians.

At a meeting of the Board of Regents of the College, December 18, Dr. James N. Williams of Richmond was elected to fellowship, and Drs. William R. Jordan and W. L. Nalls, both of Richmond, were elected to associateship.

Dr. Reid White, Jr.,

Lexington, was in January elected full-time medical director for Washington and Lee University, and is expected to take up his new duties September 1. He has for several years been University physician.

The American Association for the Study of Goiter

Will hold its next annual meeting in Cincinnati, Ohio, May 22-24. The program will consist of scientific papers dealing with goiter and other diseases of the thyroid gland, dry clinics conducted by guests, and operative clinics in the various hospitals.

Dr. F. B. Dorsey, Jr., Keokuk, Iowa, is President of this Association and Dr. W. Blair Mosser, Kane, Pa., corresponding secretary.

Dr. R. A. Morison,

Of the George Ben Johnston Hospital in Abingdon, gave a lecture at the meeting of the Virginia Alpha Chapter of Alpha Epsilon Delta, national honorary pre-medical fraternity, at Emory and Henry College on January 27. His subject was "Modern Methods of Diagnosis".

The Samuel D. Gross Prize.

The Philadelphia Academy of Surgery announces that essays for the Samuel D. Gross Prize of $1,-

500.00, will be received until January 1, 1940. This prize is awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice founded upon original investigations, the candidates for the prize to be American citizens.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, containing the name and address of the writer. They must be written by a single author in the English language and should be sent to the Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 South 22nd Street, Philadelphia, Pa.

The Virginia Tuberculosis Association

Is to hold its annual meeting at Hotel Roanoke, Roanoke, on March 31, the sessions starting at 10:00 a. m. The guest speaker is to be Dr. William Atmar Smith, president of the Southern Tuberculosis Conference. Programs may be obtained from the Virginia Tuberculosis Association, Atlantic Life Building, Richmond. A cordial invitation is extended all interested to attend.

Dr. M. T. Rosser,

Hillsville, has recently been commissioned as a Lieutenant-Commander, MC-V(S) U. S. N. R.

Tri-State Medical Association of the Carolinas and Virginia.

At the annual meeting of this Association, held in Charleston, S. C., February 20-21, Dr. A. E. Baker of Charleston succeeded to the Presidency, and Dr. C. J. Andrews, Norfolk, was named President-elect. Other officers are: Dr. J. S. Horsley, Richmond, Dr. H. S. Clark, Asheville, N. C., and Dr. W. A. Wallace, Chester, S. C., vice-presidents; and Dr. J. M. Northington, Charlotte, N. C., re-elected secretary-treasurer. The 1940 meeting will be held in Richmond.

Dr. Mack I. Shanholtz,

Recently health officer with the Health Unit at Bristol, Va., has moved to Wewoka, Oklahoma, where he has accepted a position as director of The Commonwealth Fund Health Unit located in Seminole County. Dr. Shanholtz is an alumnus of University of Virginia, Department of Medicine, class of '34.

Dr. Ralph J. Sykes,

Class of '34, Medical College of Virginia, who has served for sometime as health officer of Surry County, North Carolina, has been appointed health officer for Halifax County, that State, and enters upon his new duties on March 1.

American Board of Obstetrics and Gynecology.

Application for admission to the Group A, May, 1939, Board examinations must be on file not later than March 15. The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the Board in St. Louis, Mo., on May 15 and 16, immediately prior to the annual meeting of the American Medical Association. Candidates for re-examination in Part II (Groups A and B) must request such by writing the Secretary's office before April 1.

Application blanks and information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, (6) Pa.

The Neuropsychiatric Society of Virginia,

At a meeting at Western State Hospital, Staunton, in February, elected as president, Dr. Hugh C. Henry of Richmond, director of State hospitals. He succeeds Dr. Frank H. Redwood of Norfolk, whose term of office expired. Dr. Thomas N. Spessard of Norfolk was elected vice-president and Dr. Edward H. Williams of Richmond secretary-treasurer.

The American Congress on Obstetrics and Gynecology

Is preparing an extensive program for its meeting in Cleveland, Ohio, September 11 to 15, inclusive. The morning sessions for the five days will consist of special program for each organization group and their sub-groups. Following this, time will be given to round tables. The afternoon hours will be devoted to joint sessions of general interest to all members, and the evening sessions will include speakers of national prominence. Time will be given for visiting the scientific and technical exhibits following both the morning and afternoon sessions. Dr. M. Pierce Rucker of Richmond is regional chairman of Virginia, West Virginia and Kentucky.

Any special information desired may be obtained from the Central Office of the American Committee on Maternal Welfare, 650 Rush Street, Chicago, Ill.

International College of Surgeons.

The officers of this Association announce that the International College, in connection with the United States Chapter of that body, will hold its Assembly in New York City at the Hotel Roosevelt on May 22, 23 and 24, 1939.

Dr. Edward Frankel, Jr., of 217 East 17th St., New York City has been appointed by the International officers as General Chairman of this Assembly. Any one interested in space for scientific exhibits will please communicate with him.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

BARSKY, A. J. Plastic surgery.
BEST & TAYLOR. The living body.
CONKLIN, E. Doctors, I salute!
COWAN, A. Refraction of the eye.
DICK, G. F. Scarlet fever.
HALSEY, G. D. How to be a leader.
HEGNER, R. Big fleas have little fleas.
JUST, E. E. The biology of the cell surface.
KOLER, J. A. Approved laboratory technic. 2nd ed.

Doctors Officers of Alumni Association.

Dr. Clyde F. Ross of Richmond was elected president of the local chapter of the Roanoke College Alumni Association at its meeting on February 18, and Dr. Douglas G. Chapman was re-elected secretary-treasurer.

Dr. Hugh O. Staley,

Class of '32, University of Virginia, Department of Medicine, recently at St. Charles, is now located at Omer, Michigan.

Medical Research Work Done.

Physician having access to a complete medical library offers his services for locating references or for medical research of any kind. Fees reasonable. Address No. 38 care the VIRGINIA MEDICAL MONTHLY. (*Adv.*)

Home and School for "Exception" Children.

The Thompson Homestead School, located at Free Union near Charlottesville, is especially adapted for the shy, nervous, retarded or unsocial child. Enrollment is limited. Detailed information may be secured from Mrs. J. Bascom Thompson, principal, Free Union, Va. (*Adv.*)

Physician Wanted.

A physician is wanted for Pamplin, Va., and surrounding community. For information, write Mrs. R. H. Whitehead, R. F. D. No. 2, Pamplin, Va.

For Sale—

Allison Examining and Treatment Office Table. Looks like new. Price reasonable. Write "Allison", care the MONTHLY. (*Adv.*)

For Sale—

Eye, Ear, Nose and Throat Treatment Cabinet. In first class condition, attractively priced. For information, write "Cabinet", care this JOURNAL. (*Adv.*)

Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

Obituary Record

Dr. James Carroll Flippin,

Dean of the Medical School of the University of Virginia, and Professor of Clinical Medicine, died February 16, of heart trouble. He was a native of Lunenburg County and sixty-one years of age. Dr. Flippin received his medical degree from the University of Virginia in 1901, following which he joined the staff as instructor in medical biology. He became Dean of the Medical School in 1924. Under his direction, the medical department and the hospital were expanded at an estimated cost of more than $2,000,000.

Dr. Flippin joined the Medical Society of Virginia in 1907. Since that time he had taken an active part in the Society, serving on numerous committees, and was President for the year 1932-33. An editorial at that time, in the *Monthly,* stated: "His elevation to the presidency affords increased opportunity for his talents in the field of medical education and administration. Possessing, in rare balance, the traits of the successful teacher, the gifted clinician and the experienced administrator, he is eminently qualified to carry forward the program of his distinguished predecessors toward fulfilling the Society's dedication to service for the State and the profession." Dr. Flippin represented the State So-

ciety in the House of Delegates of the American Medical Association and also served on the Council on Scientific Assembly of this Association.

Dr. Flippin was a member of Phi Beta Kappa, Alpha Omega Alpha, Kappa Sigma, Nu Sigma Nu, and of the Farmington and Colonnade Clubs. He was the author of many papers on clinical medicine published in scientific journals.

His wife, two daughters and a son, Dr. Harrison Fitzgerald Flippin, of Philadelphia, survive him.

Dr. Joseph Thompson McKinney,

Chief radiologist at the Lewis-Gale Hospital, Roanoke, died February 3, after an illness of two months. He was a native of North Carolina and forty-nine years of age. Dr. McKinney received his degree in medicine from the Medical College of Virginia in 1912, following which he practiced for a time in Richmond. During the World War he served as a captain in the Stuart McGuire Unit, and upon his return located in Roanoke. He was a charter member and a past president of the Roanoke Kiwanis Club, a Mason and a Shriner, and also a member of the Medical Society of Virginia, in which he recently served as a councilor. His wife and two children survive him.

Dr. William Edgar Fahrney,

Broadway, died February 16. He was sixty-five years of age and graduated in medicine from the University of Maryland in 1897. Dr. Fahrney specialized in the eye, ear, nose and throat and had an extensive practice in Rockingham County. He was a member of the Medical Society of Virginia for a number of years. His wife survives him.

Resolutions on Death of Dr. Neff.

The death of Dr. John Henry Neff, Professor of Urology and Proctology, has plunged the University of Virginia into profound sorrow. His personality and influence have been for many years among the most potent forces within the University; students and colleagues alike have sought his wisdom and judgment in moments of difficulty, his support and encouragement for all good causes. His skill and professional attainments have developed in the University of Virginia a nationally recognized center not only for sound urological work but also for the training of urologists. Countless patients have received physical healing from his hands, spiritual support from the honesty and courage of his character, and cheer from his presence. By all former students, his clear and forthright teaching is looked back upon as the outstanding influence of the medicl school and hospital years. In consideration of these facts, be it

RESOLVED, that the faculty of the School of Medicine of the University of Virginia hereby express, arising from the death of Dr. Neff, a sense of bitter loss of the surgeon, the teacher, the quiet influence for justice and right, the friend and, above all, the man; and be it further

RESOLVED, that a copy of these resolutions be published in the VIRGINIA MEDICAL MONTHLY.

By the Committee:

VINCENT W. ARCHER,
JAMES R. CASH,
EDWIN P. LEHMAN, *Chairman*

In Memorian—Dr. A. A. Sizer.

Dr. A. A. Sizer, whose death ensued from a cerebral hemorrhage on January 10, was sixty-eight years old, was born at King William Court House, and graduated from the Medical College of Virginia in 1899.

He practiced medicine for forty years; a great part of this period of practice was spent at the Alberene Soapstone Quarry Corporation, Schuyler, Va.

Dr. Sizer was a member of the American Medical Association, the Medical Society of Virginia and the Nelson County Medical Society. In 1918 he volunteered for service in the World War.

WHEREAS, by the death of Doctor Sizer, the Nelson County Medical Society has lost a valued and able member, the Society desires to express its deep appreciation of his professional abilities, high type of manhood and gentlemanly conduct.

The people of Schuyler have lost an able and sympathetic medical adviser, who, as a friend, entered their homes in the spirit of love and devotion to duty.

The beauty of such a life, we might well strive to emulate.

F. M. HORSLEY,
A. MICKLEM,
J. F. THAXTON.
Commi tee.

Dr. Virgil Eubank Stiff,

Harmony Village, died February 11, following complications resulting from a recent mastoid operation. He was sixty-two years of age and a graduate of the Medical College of Virginia, class of 1906. His wife and two daughters survive him.

Dr. Oliver S. Burns,

Well known physician of Lebanon, died on October 26, at the age of seventy-three years. He was a graduate of the Kentucky School of Medicine of Louisville in 1885, and was a member of the Russell County Medical Society.

Dr. John Bruce James

Died in a Baltimore Hospital, February 6, following a long illness. He was a native of Danville and thirty-three years of age. Dr. James graduated from the Medical College of Virginia in 1931.

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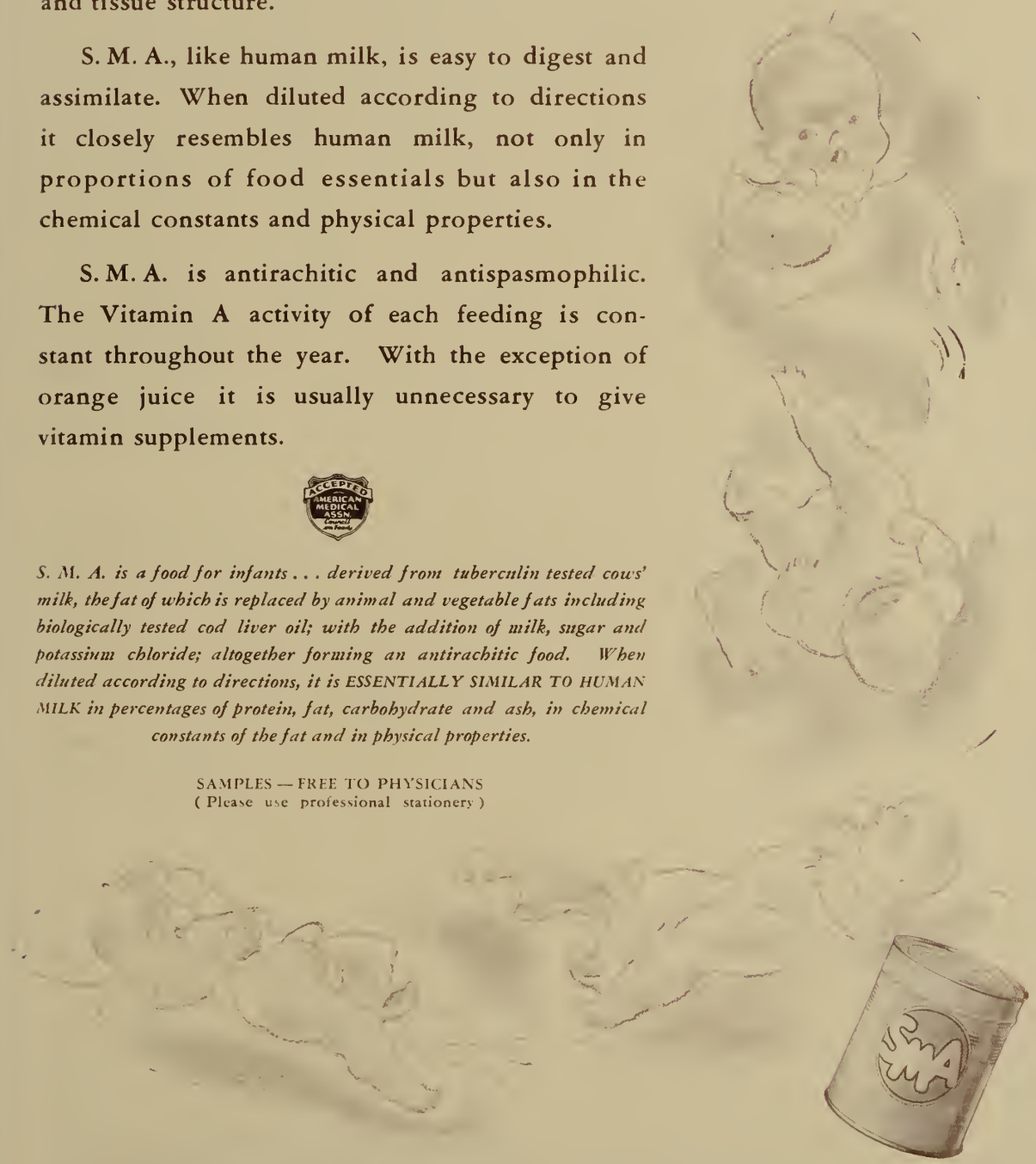

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CONTENTS

A Simplified Classification of Commercial Preparations of Sex Hormones. W. G. Crockett, M. S., Phar. D., Richmond, Va. 191
The Use of Shock Therapy in the Treatment of the Affective Disorders. David C. Wilson, M. D., University, Va. 197
Some Newer Viewpoints on Peptic Ulcer as a Clinical Problem. T. Grier Miller, M. D., Philadelphia, Penn. 204
The Practical Value of Gastroscopy to the Internist. E. B. Mewborne, M. D., and E. L. Alexander, M. D., Newport News, Va. 209
Economic Status and the Control of Cancer. Edwin P. Lehman, M. D., University, Va.; Irl C. Riggin, M. D., Richmond, Va.; J. Alex. Cocke, University, Va. 213
The Compensatory Mechanisms in Anemia. Frank L. Apperly, M. A., M. D., D. Sc., M. R. C. P., Richmond, Va. 215
Varicose Veins of the Broad Ligament. R. M. DeHart, M. D., Christiansburg, Va. 218
The Diagnosis and Treatment of Obstructing Tuberculous Lesions of the Tracheobronchial Tree. Porter P. Vinson, M. D., Richmond, Va. 221
Sleeve Wire Fixation of Fractures—A Method of Fixation of Fractures in Which the Fragments Are Separated. Report of Forty-Four Cases of Fractures of the Proximal End of the Tibia. Thomas Wheeldon, M. D., Richmond, Va. 223
Acute Glomerulonephritis—Observations on Clinical Course, Prognosis and Treatment. Byrd S. Leavell, M. D., Julian R. Beckwith, M. D., and J. Edwin Wood, Jr., M. D., University, Va. 226
Partial Occlusion of Superior Mesenteric Artery. James A. Gannon, M. D., F. A. C. S., Washington, D. C. 235
CORRESPONDENCE 236
PUBLIC HEALTH STATISTICS 238
NEW MEMBERS 239
WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 239
PROCEEDINGS OF THE COUNCIL OF THE MEDICAL SOCIETY OF VIRGINIA 241
TRUTH ABOUT MEDICINE 243
BOOK ANNOUNCEMENTS 244
EDITORIAL 245
DEPARTMENT OF CLINICAL AND MEDICAL EDUCATION OF THE MEDICAL SOCIETY OF VIRGINIA 247
PROCEEDINGS OF SOCIETIES 249
NEWS NOTES 250
OBITUARY RECORD 253

INDEX TO ADVERTISERS—Advertising Page 6

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A SIMPLIFIED CLASSIFICATION OF COMMERCIAL PREPARATIONS OF SEX HORMONES.*

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Richmond, Virginia.

The increasing demand for sex hormones and the multiplicity of names under which they are being marketed is proving highly confusing to physicians who wish to use them and to pharmacists who supply them. Inquiries made in drug stores reveal that doctors frequently request literature from druggists setting forth the names of these products, their professed potencies, their differences, uses, etc. This paper is an attempt to clarify some of the confusion. The story of the sex hormones is told here in non-technical language so that an elementary conception of the subject may be obtained by those who have given little thought to it.†

Hormones are by no means new to us. For years we have dealt with epinephrine, insulin, thyroxin, and others. They have been defined as "substances produced by the cells of the ductless glands (endocrine glands) in various parts of the body and carried by the blood stream to other parts of the body". They affect the growth and activity of certain organs, and hence of the body as a whole. The sex hormones are produced for the most part by the anterior portion of the pituitary gland, by the ovaries and by the testes. Originally sex hormones were obtained chiefly from the urine of pregnant women. Some of them are now made synthetically.

Since the pituitary gland possesses so much control over the other endocrine glands and their secretions, it has been called "the leader of the endocrine orchestra". This gland, about the size of a pea, is located at the base of the brain. It is divided into two portions, the anterior and the posterior. Each portion secretes hormones. It is the anterior portion which concerns us in this paper, as it secretes the gonadotropic hormone.

This hormone stimulates the testes and ovaries, and thereby aids in regulating menstruation and producing normal sexual development. It is available commercially but its chemical nature has not been ascertained. There is available also a hormone similar to it which is called the "anterior pituitary-like" hormone or "placental prolan", which is obtainable from the urine of pregnant women and pregnant mares. Apparently it is formed by the placenta. Antuitrin-S (P.D. & Co.) is an illustration of this hormone. It is recommended for use in the treatment of menstrual disorders, impotence, undescended testicles, delayed development of the sexual organs, etc.

Table No. 1 lists in alphabetical order the manufacturers known to the writer who market preparations of the "anterior pituitary-like" hormone. It sets forth also the manufacturer's name for his product, its potency and the size of the containers in which it is marketed. Table No. 2 lists anterior pituitary extracts which contain the gonadotropic hormone.

Table No. 1 may be useful in answering certain questions with regard to the way in which these products are marketed. The reader should not assume, however, that products declaring the same number of rat units are of the same strength. In this connection a quotation from a pamphlet on Antuitrin-S, by Parke, Davis & Co., is helpful.

"The term 'rat unit' as applied to therapeutic preparations of the anterior pituitary-like hormone of pregnancy urine may designate different potencies in different products. The present condition is no doubt due to the fact that there is no national or

*From the School of Pharmacy, Medical College of Virginia, Richmond, Va.

†In order that this information may be made available to Virginia pharmacists, reprints of this paper will be mailed to them upon request. The one who reads this article in the Virginia Medical Monthly should bear in mind that certain portions of it are not intended for him so much as for the pharmacist who will later read the reprint.

TABLE NO. 1
THE ANTERIOR PITUITARY-LIKE HORMONE (PROLAN).
(Obtainable from pregnancy urine or the placenta).

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	AMPULE OR VIAL SIZE AND POTENCY IN RAT UNITS
Ayerst, McKenna and Harrison	A. P. L.	5 and 10 cc vials, 500 R.U. (Collip) per cc.
Endo Products	Entromone	10 cc. vial, 125 R.U. per cc. 50 " " " " " " 10 " " 500 " " "
Parke, Davis	Antuitrin-S (Apoidin)	10 cc. vial, 100 R.U. per cc. 50 " " " " " " 10 " " 500 " " "
Roche-Organon	Pregnyl	ampules, dry powder. 1 cc, 100 R.U. each. 1 " 500 " "
Squibb	Follutein	ampules each containing 500, 1,000 or 5,000 R.U. Dilute each to 100 or 1,000 R.U. per cc. before administering.
Winthrop	Korotron (formerly called Antophysin)	ampules, dry powder. 100, 500, 1,000 and 5,000 R.U. each.

international unit, as yet, by which such products should be standardized. . . . There are at present three methods of assay in common use. These three methods make use of rats and express their results in terms of 'rat units'. That these various 'rat units' cannot be directly compared is readily evident when the methods of determining them are considered. . . . Direct comparison of products on a 'unit for unit' basis is impossible. The physician has but two criteria to guide him in his selection of therapeutic preparations of this hormone—his own clinical experience, and his confidence in the skill and integrity of the producer of a given product."

Besides the gonadotropic hormone the anterior pituitary produces other hormones such as the thyrotropic (thyroid stimulating) hormone, the growth hormone, the lactogenic hormone (stimulating milk secretion) and the adrenotropic (adrenal stimulating) hormone.

Whereas Table No. 1 presented commercial products of the anterior pituitary-like hormone (obtained from pregnancy urine), Table No. 2 treats of those which are made by extracting the above-mentioned principles from the anterior pituitary gland. The products of Table No. 2 may differ widely in composition due to differences in the methods of manufacture. They are not necessarily comparable on a "unit for unit" basis, as is shown in the footnotes of Table No. 2. They are recommended in the treatment of dwarfism, menstrual disorders, sexual underdevelopment, etc.

Proceeding now to the ovaries we find that they secrete two well known hormones, (1) the estrogenic hormone, estradiol, and (2) the corpus luteum hormone, progesterone. Each of these has several names which will be considered later. With reference to the purposes which these hormones serve in the female, we find that in early life the estrogenic hormone stimulates the growth of the female sex organs, the development of the breasts and the distribution of hair. From puberty to the menopause it is secreted in varying quantities from the end of one menstruation to the beginning of the next. During these approximately twenty-four day periods it prepares the uterus for pregnancy or for menstruation, by causing a pronounced growth or thickening of the mucous membrane on the inner wall of the uterus.

About the tenth day following each menstruation an egg is released by the ovary and starts through the fallopian tube to the uterus. Several days are required for its passage. Shortly after its release, the ovary begins manufacturing a yellow substance called the corpus luteum, and this in turn secretes the corpus luteum hormone, namely, progesterone. This hormone is carried by the blood to the uterus and prepares the thickened mucous membrane on its inner wall for the reception of the fertilized egg, i.e., for pregnancy. If fertilization does not take place, the thickened mucous membrane sloughs, thereby producing menstruation about twenty-four days after the last menstrual period ceased. At this stage the manufacture and secretion of the corpus luteum hor-

TABLE No. 2
ANTERIOR PITUITARY GLAND EXTRACTION PRODUCTS.

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	AMPULE OR VIAL SIZE AND POTENCY
Armour	Gonadotropic Factor	10 cc. vials, 300 Rat Units (Collip) per cc. (See footnote No. 1.)
	Polyansyn	10 cc. vials, 1 cc. represents 500 mg. fresh glandular tissue. "Contains all the hormones of anterior lobe of bovine pituitary".
	Ovarian-Anterior Pituitary Liquid	2 cc. ampules. Contains anterior pituitary gonadotropic factors and ovarian extractives.
Ayerst, McKenna and Harrison	Gonadotropic Factor	At least 300 R.U. (Collip) per cc. (See footnote No. 1.)
	Polyansyn	5 and 10 cc. vials, 1 cc. represents 500 mg. of fresh bovine gland. Contains growth, adrenotropic, thyrotropic, lactogenic and a little gonadotropic factors.
	Growth Complex	5 and 10 cc. vials. 1 cc. contains 100 Collip R.U. growth factor, 10 Collip R.U. adrenotropic and lactogenic factors. (Footnote No. 2.)
Chappel	Prephysin (Anterior-Pituitary Gonadotropic Hormone)	5 cc. vials, 25 units (about 100 Collip clinical units) per cc. (Footnote No. 3.)
	High Potent Prephysin	100 units per cc.
Lilly	Pituitary Extract Anterior Lobe	1 cc. ampules. Each represents 1.2 Gm. fresh anterior lobe.
Parke, Davis	Antuitrin-G	20 cc. vials, 10 R.U. growth hormone per cc. (Footnote No 4.)
Roche-Organon	Ambinon	1 cc. ampules. Each contains 50 R.U. pituitary gonadotropic hormone and 200 guinea pig units pituitary thyrotropic hormone. (Footnote No. 5.)
Searle	Gynatrin	5 and 15 cc. vials, 100 R.U. gonadotropic hormone per cc. (Footnote No. 6.)
Sharp & Dohme	Pituitary Body Anterior Lobe Desiccated	1 cc. ampules. Each contains the water soluble extract from .2 Gm. desiccated anterior lobe.
Squibb	Anterior Pituitary Extract	20 cc. vials containing 200 growth units, also thyrotropic and gonadotropic factors. (Footnote No. 7.)
Wilson Laboratories	Phyone	10 and 30 cc vials. 1 cc. is equivalent to .133 Gm. fresh anterior tissue assayed for presence of growth hormone, and 1 to 2 units of thyrotropic hormone. Available for experimental clinical use only.

FOOTNOTES TO TABLE No. 2

(1) One unit is one-tenth of that amount, which, when administered daily, in three divided doses, for three days, to a group of at least ten twenty-one-day old female rats, each weighing between thirty and forty grams, produces ovaries having a combined weight of thirty-five milligrams seventy-two hours after the first injection.

(2) Growth Factor: One unit is that amount, which, when administered daily in two divided doses over a period of ten to fifteen days, by intraperitoneal injection into recently hypophysectomized but otherwise untreated rats weighing eighty to 120 grams, causes an increase in body weight of one gram per day.

(3) One unit is that amount which, dissolved in 1½ cc. of liquid and injected in six injections (¼ cc. per injection) over a period of three days into immature rats (twenty-one days old) brings about an increase in the weight of the ovaries from 50 per cent to 100 per cent, as found in autopsy at the end of the fifth day. It is to be noted that this unit represents a potency equivalent to about four Collip clinical units.

(4) A rat unit of Antuitrin-G is defined as the minimal daily amount which when injected intraperitoneally into a mature female rat will cause an average daily increase of 1 per cent in body weight over a period of at least ten days.

(5) One rat unit is the smallest amount of pituitary extract which, when combined with five rat units of Pregnyl, increases the average ovarian weight to 20 mg. in the test animals.

(6) Immature female white rats weighing thirty-five to forty grams, and less than thirty days old are given six equal subcutaneous injections, divided into two each day for a period of three days. On the morning of the fifth day, the animals are autopsied. Many animals are used for each test and at least 60 per cent must show a marked increase in the size of the ovaries and uterus, coupled with follicular maturation and luteinization in the ovary. One unit is defined as the smallest amount which under the conditions of the test will give this positive reaction of estrus.

(7) One growth unit is one-tenth of the minimal daily amount which, when injected each day for ten consecutive days into female rats (weighing 250 grams), will cause an increase of 10 per cent in body weight within an eleven-day period.

TABLE No. 3
THE ESTROGENIC HORMONE

One ten-thousandth mg. of estrone (the estrogenic hormone) represents one International Unit. Stated differently, .1 mg. of estrone represents 1,000 International Units.

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	AMPULE OR VIAL SIZE AND POTENCY	TABLETS OR CAPSULES	VAGINAL SUPPOSITORIES
Abbott	Estrone	1 cc., .1 mg. in oil 1 cc., .2 mg. in oil 1 cc., .5 mg. in oil 1 cc., 1.0 mg. in oil		.02 mg. each .2 mg. each
	Estriol		capsules: .06 mg. each .12 mg. each	
Ayerst, McKenna and Harrison	Emmenin	4-oz. bottles for oral use, 30 day-oral units (Collip) per cc.	tablets: 120 day-oral units (Collip) each	
Endo Products	Estromone	in oil: 1 cc., 2,000 Int. U. each 1 cc., 5,000 Int. U. each 1 cc., 10,000 Int. U. each 1 cc., 50,000 Int. U. each	tablets: 1,000 Int. U. each 2,000 Int. U. each	
Lilly	Estrone	1 cc., .1 mg. in oil 1 cc., .2 mg. in oil 1 cc., 1.0 mg. in oil		.2 mg. each
	Estriol		capsules (pulvules): .06 mg. each .12 mg. each	
Parke, Davis	Theelin	Aqueous: 1 cc., .02 mg. each. in oil: 1 cc., .1 mg. each 1 cc., .2 mg. each 1 cc., .5 mg. each 1 cc., 1.0 mg. each		.2 mg. each
	Theelol		capsules (kapseals) .06 mg. each .12 mg. each	
Reed and Carnrick	Estrogenic Hormone	in oil: 1 cc., 2,000 Int. U. each 1 cc., 6,000 Int. U. each 1 cc., 10,000 Int. U. each vials: 5, 10 and 20 cc., each containing either 2,000, 6,000 or 10,000 Int. U. per cc.	tablets: 1,000 Int. U. each	
Roche-Organon	Menformon	in oil: 1 cc., 1,000 Int. U. each 1 cc., 5,000 Int. U. each vials: 5 cc., 10,000 Int. U. 5 cc., 50,000 Int. U.	tablets: 1,000 Int. U. each 10,000 Int. U. each	
	Dimenformon (estradiol)		tablets: 1/24 mg. (500 Rat. U. each) 1/6 mg. (2,000 Rat U. each)	
	(One rat unit of dimenformon (estradiol) is equivalent to approximately 5 International Units of estrone)			
	Dimenformon Benzoate (estradiol benzoate)	in oil: 1 cc., 1,750 Int. Benz. U. 1 cc., 3,500 Int. Benz. U. 1 cc., 17,500 Int. Benz. U.		
	(One International Benzoate Unit of estradiol benzoate represents several times more activity and more protracted action than one Int. U. of estrone).			

Name of Manufacturer	Manufacturer's Name for His Product	Ampule or Vial Size and Potency	Tablets or Capsules	Vaginal Suppositories
Schering	Progynon-B (estradiol benzoate)	in oil: 1 cc., 500 Rat. U. each 1 cc., 1,000 Rat U. each 1 cc., 2,000 Rat U. each 1 cc., 10,000 Rat U. each		
	Progynon-DH (estradiol)	in alcohol: 10 cc. vials for oral use, .1 mg. estradiol per cc.	tablets: 1/24 mg. (500 Rat. U. each) 1/6 mg. (2,000 Rat U. each) ½ mg. (6,000 Rat U. each)	250 Rat. U. each 2,500 Rat. U. each
	Progynon-DH is marketed also in ointment as follows: (a) 200 Rat U. per Gm. (b) 1,000 Rat U. per Gm.			
Schieffelin	Pro-Follin (estradiol-17-propionate)	in oil: 1 cc., 1,000 Rat U. each 1 cc., 2,000 Rat U. each 1 cc., 5,000 Rat U. each 1 cc., 10,000 Rat U. each		
Squibb	Amniotin	in oil: 1 cc., 2,000 Int. U. each 1 cc., 10,000 Int. U. each 1 cc., 20,000 Int. U. each	capsules: 1,000 Int. U. each 2,000 Int. U. each	1,000 Int. U. each 2,000 Int. U. each
	(Amniotin in oil for nasal administration is marketed as follows: 30 cc. vial containing a total of 20,000 Int. U. 5 cc. vial containing a total of 50,000 Int. U.).			

TABLE No. 4

THE CORPUS LUTEUM HORMONE, PROGESTERONE.
One International Unit represents one mg. of C. P. Progesterone.

Name of Manufacturer	Manufacturer's Name For His Product	Ampule Size and Potency
Endo Products	Lutromone (formerly Lutrone)	1 Int. U. each 1/2 Int. U. each 1/5 Int. U. each 1/25 Int. U. each
Lilly	Progestin	1 cc., 1 Int. U. each, in oil
Parke, Davis	Lipo-Lutin	1 cc., 1 Int. U. each, in oil 1 cc., 2 Int. U. each, in oil
Roche-Organon	Progestin	1 cc., 1 Int. U. each, in oil 1 cc., 5 Int. U. each, in oil 1 cc., 10 Int. U. each, in oil
Schering	Proluton	1 cc., 1/5 Int. U. each, in oil 1 cc., 1 Int. U. each, in oil 1 cc., 2 Int. U. each, in oil 1 cc., 5 Int. U. each, in oil 1 cc., 10 Int. U. each, in oil
Upjohn	Progestin	1 cc., containing ½ or 1 Corner rabbit unit each, in oil. (Footnote.)

FOOTNOTE: Corner rabbit units cannot be expressed in terms of International Units. The Corner rabbit unit is the minimum quantity which, divided into five equal daily doses, produces on the sixth day a degree of progestational proliferation equal to that found in the uterus on the eighth day of a normal pregnancy.

mone, progesterone, ceases until about two weeks before the next menstruation.

As stated previously, the estrogenic hormone estradiol is secreted by the ovary. This compound is broken up in the human body into estrone (theelin) and estriol (theelol) which are eliminated in the urine. All three are closely related chemically and each is referred to as " the estrogenic hormone".

They have the same therapeutic effect but differ in intensity. Estradiol is the most powerful, estrone (theelin) next, and estriol (theelol) the least potent of the three. Since estriol is the mildest, it is recommended when a small dose of estrogenic hormone a week will be sufficient. When larger doses are required a product of the estrone type may be administered. Estradiol has a prolonged action and is used in severe cases where high unit dosage is necessary. Unit for unit, oral administration of the estrogenic hormone is believed to be considerably less effective than intramuscular injection.

The consideration of sex hormones is greatly complicated by the fact that they are known by so many different names. Some of these names are in unrestricted use while others are protected. A survey of the literature and of communications from manufacturers shows that the following names or products are used synonymously with the term "estrogenic hormone": the female sex hormone, the follicular hormone, the estrogenic follicular hormone, folliculin, amniotin, estrin, estrogen, estriol, estradiol, estrone, estromone, menformon, dimenformon, dimenformon benzoate, pro-follin, progynon-B, progynon-DH, theelin, theelol, and probably others.

The estrogenic hormone is obtained from pregnancy urine or from the placenta. It is recommended for controlling menopausal symptoms, in the treatment of gonorrheal vaginitis in children, senile vaginitis, menstrual disorders, infantilism and sterility.

Table No. 3 lists certain facts with regard to the way in which manufacturers known to the writer market the estrogenic hormone.

The corpus luteum hormone, progesterone, is essential to the maintenance of pregnancy by its action on the uterine lining. It is now prepared synthetically and is recommended in cases of menstrual disorders, threatened or habitual abortion, sterility, etc. The estrogenic hormone stimulates uterine contractions; progesterone inhibits them. Table No. 4 lists certain facts with regard to the way in which manufacturers known to the writer market the corpus luteum hormone.

TABLE NO. 5
THE MALE SEX HORMONE

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	1 CC. AMPULES EACH CONTAINING:
Ciba	Perandren (synthetic testosterone propionate)	5 mg. in oil 10 mg in oil 25 mg. in oil
Endo Products	Virosterone ("From natural sources. All the useful androgenic hormones".)	1 capon unit (see footnote) 3 capon units 5 capon units
Roche-Organon	Neo-Hombreol (synthetic testosterone propionate) Neo-Hombreol is marketed as ointment also.	5 mg. in oil 10 mg in oil 25 mg. in oil
Schering	Oreton (synthetic testosterone propionate)	5 mg. in oil 10 mg in oil 25 mg. in oil
	Oreton is supplied in ointment also, 50 gram tubes, for topical application. Each gram of ointment contains 2 mg. of testosterone propionate.	

FOOTNOTE: Capon units cannot be expressed in terms of milligrams. The capon unit is the amount of material required by injection over a period of five consecutive days to cause an increase of the capon comb (length plus height) of from 3 to 7 millimeters by the sixth day, in at least 5 out of 10 injected capons.

The male sex hormone, secreted by the testes, is known as testosterone. It undergoes a slight change in the body and is eliminated in the urine as androsterone. These two compounds have chemical formulas which are similar to each other and to those of estrone, estriol, estradiol and progesterone. Both testosterone and androsterone can be recovered from natural sources or made synthetically. The action of testosterone propionate is more intense and more prolonged than that of free testosterone. The propionate is marketed in oil for intramuscular injection. It

is recommended in the treatment of infantilism, impotence, and sterility. Table No. 5 sets forth the male hormone preparations which are known to the writer.

For the benefit of the physician it should be stated that sex hormone preparations are quite expensive. There is little likelihood that any druggist stocks all those mentioned in this paper. He carries only those which the physicians of the community are using.

The druggist should bear in mind that the use of male and female sex hormones is still in the experimental stage. Their administration may be attended with serious results. He should protect both himself and the public by refusing sale of these products except on receipt of a prescription. Their use for self-medication is fraught with danger.

THE USE OF SHOCK THERAPY IN THE TREATMENT OF THE AFFECTIVE DISORDERS.*

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University, Virginia.

The term affective disorders is used here to designate those types of mental diseases whose main characteristics are an abnormal alteration in the mood or feeling tone. Such a classification includes the disorders usually placed under the title of manic depressive psychosis as well as so-called involutional depressions and those mixed forms of depression which are so hard to differentiate from severe anxiety states. The results secured from the treatment of these conditions have always been uncertain, since the average case tends to run a self-limited course and to improve spontaneously. However, it is well recognized that the older a person is the longer course his depression is likely to run and the more unlikely it is to end in a definite cure. In general the prognosis for cases of involutional melancholia if the patient has marked somatic delusions or if his disease has lasted over four years is held to be very unfavorable. Shock therapy was used in some of the former cases not so much with the idea that the patient might not get well at some future time, but in an effort to shorten the course of his disease and to alleviate his great suffering.

Meduna[1] was the first to use metrazol in the treatment of schizophrenia. Since making his first report in 1935 he has treated numerous patients and has given over one thousand injections without any fatalities. Wahlmann,[2] in reviewing in 1936 a series of schizophrenia cases treated by this method, reported the use of metrazol in a single case of manic depressive psychosis, although the drug was given in this instance only because this individual had demonstrated a few catatonic symptoms. The patient improved after five injections of 5 cc. of a 10 per cent solution. The doctor in reporting the case apologized, however, for using the drug in the case of a manic depressive psychosis. He is probably the first to use the therapy in this type of mental disorder. The next report of the use of metrazol in affective states was made by Owensby,[3] of Atlanta, in 1938. He described in the *Commentator* the use of the drug in such conditions. Richard Young,[4] of Omaha, Nebraska, who read his results before the Neuro-Psychiatric Section of the American Medical Association last June, has also treated cases in depression by the Meduna method and there have been other reports of a similar nature. Young's work has not yet been published.

Shock therapy was instituted at the University of Virginia Hospital in March, 1937, but metrazol was not used until September of that year and its use first restricted to cases of schizophrenia. It was found, however, that insulin convulsions alleviated the agitation in cases suffering from depression. Therefore, because metrazol convulsions were considered less dangerous, they were substituted for insulin. This type of convulsion was used first in a young adult who had been suffering from a manic depressive psychosis, depressed phase, for a year and one-half. A marked improvement followed and the drug was tried also in cases of the manic phase of the psychosis. Finally, its use was extended to the treatment of the depressed form of manic depressive psychosis in older people, forty to fifty-five years of age, who were suffering from so-called involutional melancholia, a

*Read before the sixty-ninth annual session of the Medical Society of Virginia, at Danville, Va., October 4-6, 1938.

mixed form of depression in which there is great agitation as well as a downward mood swing.

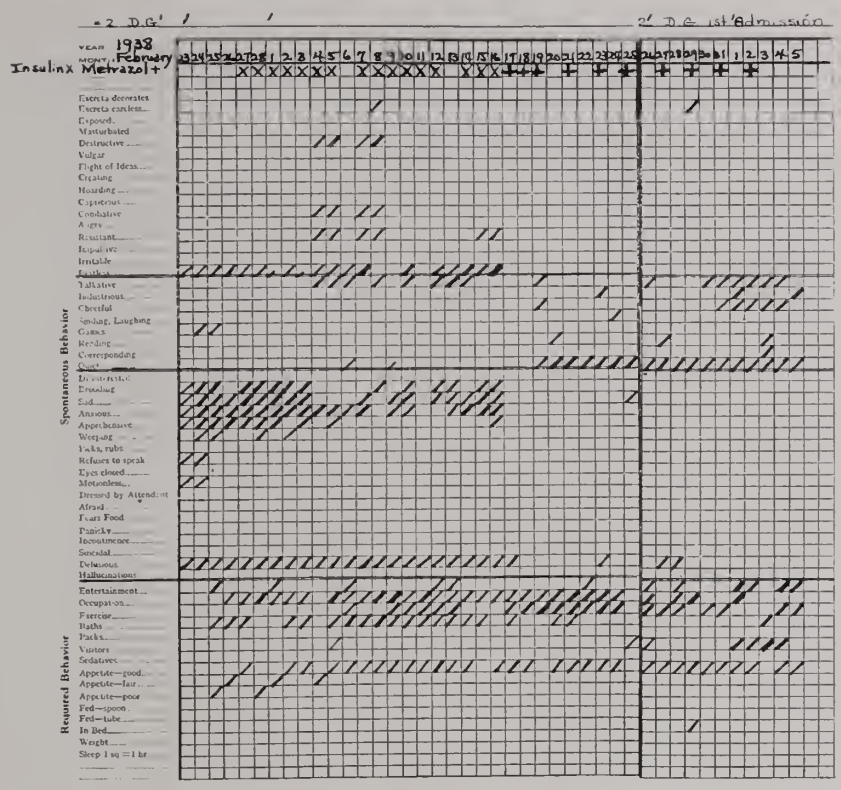
The results in this last group were very striking. It was soon found that some of these individuals of the older group responded rapidly to shock therapy. Indeed, improvement was practically immediate and phenomenal; sometimes four or five convulsions produced a complete remission. The patient who had been very sick was practically well in a few days. This result was found to depend somewhat on the duration of the disease. In more chronic cases it was necessary to induce fifteen or twenty convulsions before there was adequate improvement. Also, it was soon found that these immediate recoveries were often deceptive, for often in these individuals who were apparently well there was a quick return to their former state as soon as the drug effect had disappeared.

In treating patients of this age it was necessary to make especially careful studies of their physical condition. The contra-indications to convulsive therapy of this type as published by Meduna are: (a) evidence of cardiovascular disease, (b) acute febrile reaction, (c) menstruation, (d) abnormalities in the laboratory findings and (e) history of head trauma with subsequent unconsciousness. Contra-indications were rigidly observed and somewhat more conservative methods adopted in treating this older group of individuals. Gradually the following plan for handling cases of affective disorders has been developed: First, complete physical and neurological examinations, including a spinal fluid, are made. A mental examination follows, including particular studies of results suggestive of cortical damage. Next, an effort is made to estimate the degree of elation, agitation or depression from which the patient is suffering. The cardiologist is then called in to find the amount of arteriosclerosis evident in the peripheral and retinal vessels, the size of the heart and other possible evidences of cardiovascular deterioration. If these studies show no changes incompatible with the age of the patient, it is considered that shock therapy is not contra-indicated and the patient is then given 5 cc. of a 10 per cent solution of metrazol intravenously. If this does not produce a convulsion within ten minutes, 5 cc. more are given. An attempt is made to give the patient three convulsions a week on alternate days. The dose of the drug is increased one-fourth cc. after each injection and whenever no convulsion is obtained, the dose is repeated immediately. If the second dose fails to produce a convulsion, the patient is immediately given three grains of sodium amytal and put in hot packs. In individuals in which there is great apprehension, a dread of the metrazol injection, insulin therapy is combined with the metrazol shock. The patient is given thirty units of insulin in the morning at seven o'clock. Each day the dose is increased until shock is obtained and while the patient is in shock, the metrazol is given. Combining the two types of treatment accomplishes two things: first, it eliminates the fear of the treatment; secondly, it apparently results in a more rapid and lasting type of improvement. As the treatments are continued, the patient, as a rule, begins to quiet down, to sleep well, to eat well and to put on weight. After four or five treatments a rest period is instituted, the patient is allowed to come out from the effect of the drug and an estimation is made of the degree of improvement in his condition. If, after two days' rest, he continues to improve, two more days are allowed. If then the change for the better still continues, no more convulsions are given, but the patient is kept in the hospital for a week's observation. If at the end of that time there is still improvement and it is considered adequate in degree the patient is allowed to go home.

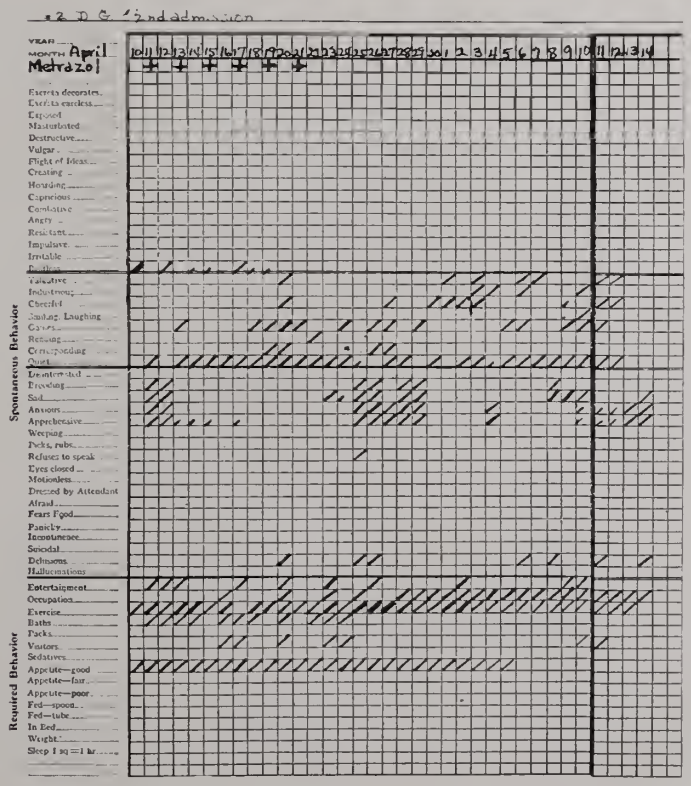
The results obtained by the use of this method in the treatment of twenty-one cases with affective disorders are here reported. The data is summarized on Table 1.

TABLE I
RESULTS OF SHOCK THERAPY IN
19 CASES OF DEPRESSION AND 2 OF MANIA

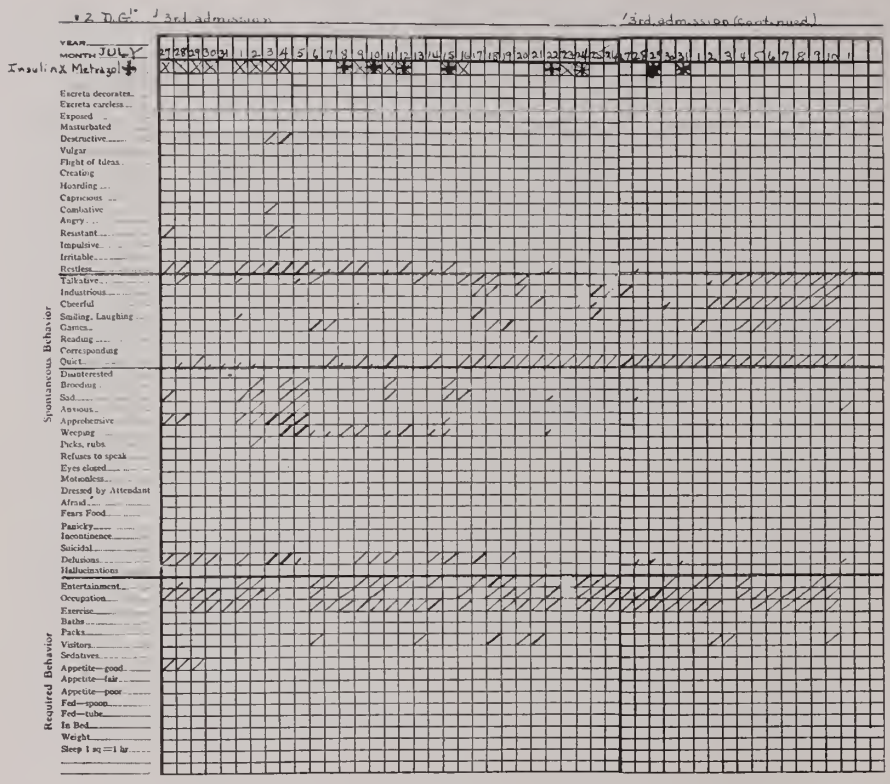
Case	Age	Sex	Degree of elation or depression	Duration	Shocks	Improvement on discharge	Interval	Present status
1	35	F	D + + + +	21 mo.	20	+ + +	10 mo.	Well
2	50	F	D + + + +	60 mo.	26	+ + +	1 mo.	Still improving
3	31	F	M + + + +	½ mo.	6	+ + + +	3½mo.	Well
4	38	F	D + +	24 mo.	4	+ +	3 mo.	Suicide
5	45	M	D + +	5½mo.	10	+ + +	2 mo.	Improved
6	55	M	D + + +	24 mo.	12	+ + +	2½mo.	Well
7	4[illegible]	F	D + + + +	36 mo.	4	+ + + +	1½mo.	Still improving
8	44	F	D + + +	17 mo.	8	+ + +	½mo.	Improved
9	59	F	D + + +	¾ mo.	27	+ + +	4½mo.	Still improving
10	52	F	D + + +	1½mo.	7	+ + +	1½mo.	Still improving
11	54	F	D + + + +	12 mo.	5	+ + +	5 mo.	Relapsed
12	50	F	D + +	48 mo.	9	+ + +	2 mo.	Relapsed
13	28	F	D + + +	1 mo.	7	+ + +	¾ mo.	Well
14	44	F	D + +	9 mo.	3	+ +	2 mo.	Improved
15	57	F	D + + + +	10 mo,	1	0	2 mo.	Unimproved
16	62	M	D + + +	10 mo.	3	+ +	5 mo.	Relapsed
17	45	F	D + + +	4 mo.	2	+ + + +	4½mo.	Relapsed
18	20	M	D + + + +	9 mo.	5	+ + +	5½mo.	Improved
19	50	M	D + + + +	24 mo.	10	+ + +		Still improving
20	41	M	D + + + +	2 mo.	7	+ + + +		Still improving
21	15	M	M + +	5 mo.	5	+ + +	3 mo.	Relapsed
Slight + +				Moderate + + +			Marked + + + +	


#2 D.G.
2' D.G. 1st Admission
YEAR 1938
MONTH February
Insulin X
Metrazol +
Spontaneous Behavior
Required Behavior

Case 2.


#2 D.G. 2nd admission
YEAR
MONTH April
Metrazol
Spontaneous Behavior
Required Behavior

Case 2.



Case 2.

Treatment was started on this series of cases in September, 1937. With the exception of three, the patients were over thirty years of age. These three were twenty-eight, twenty, and sixteen, respectively. The oldest patient was sixty-two years of age, but the average age was approximately forty-five. In the group there were seven males and fourteen females. The disorders affecting all twenty-one cases were considered to be of the manic depressive type, although two had been classified as severe anxiety states with depression. These two, however, gave histories of mood swings and certainly should be considered types of affective disorder. Two of the cases were in the manic stage and the remainder in the depressed phase. The durations of the patients' illnesses prior to their entrance into the hospital varied from two weeks to five years. Nine of the group had had previous attacks of similar nature. The number of convulsions given varied from one to twenty-seven. Case 2 had three series of treatments and two relapses; Case 9 had two series of treatments and one relapse. Both showed final improvement. Nineteen of the group were improved at the time of discharge and fourteen still remained improved at least one month later. Four have had relapses and one has committed suicide. It is only fair to state, however, regarding the five cases in which there was failure that none of them was adequately treated and, for one reason or another, each left the hospital before it was planned for him to be discharged.

It is very difficult to picture the degrees of depression and agitation present in a person suffering from a mixed form of depression in which there is increased psychomotor activity and lowering of the feeling tone. An attempt has been made, however, by a series of behavior charts, to give a satisfactory general picture of the condition of these patients before treatment, during treatment, and after they had recovered. These behavior charts are similar to those formulated at Phipp's Clinic in Baltimore. In the center are collected the types of behavior seen in the normal, while above are listed those acts usually found in hyperactive individuals, and below are those found in persons suffering from depressions or retardations. On these charts, each day is represented by a column of squares and, as the days go on, a graph is made indicating the patient's behavior for that day. The days for metrazol injections are marked with plusses and those for insulin shock with crosses so that the relationship between the shock therapy and changes in agitation and depression is clearly depicted.

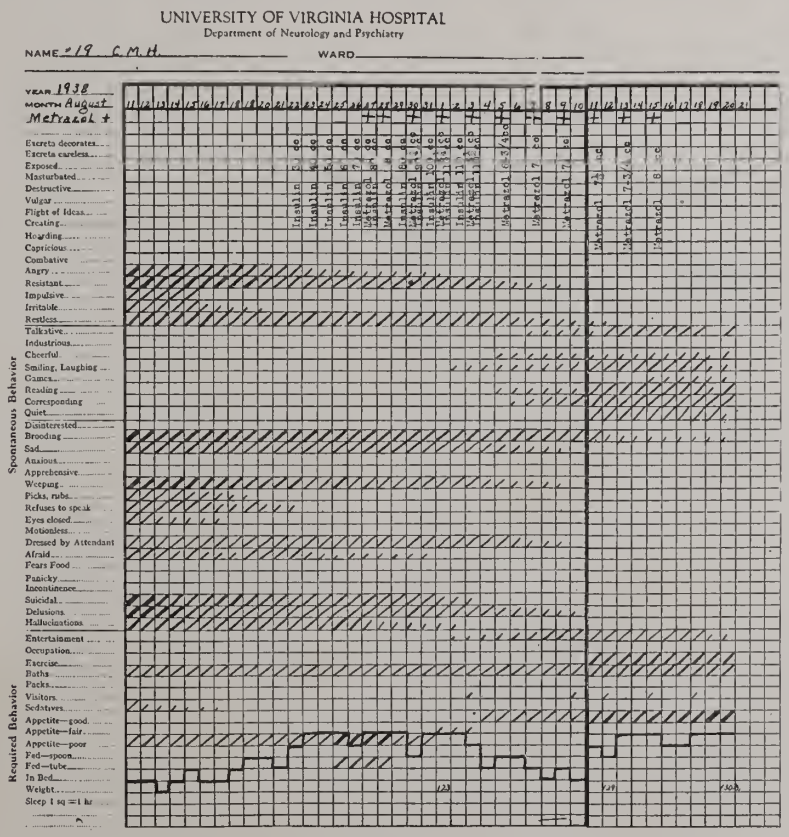
The first three charts are those of Case 2, who suffered from two relapses and had three series of injections. The fourth is the chart of Case 3 which, as can be easily seen from the behavior chart, is a case of mania responding rapidly to treatment. The fifth is the behavior chart of Case 5, illustrating a mixed form of depression which responded rapidly. The sixth is the similar chart of Case 19. The last is that of Case 20, and again illustrates the rapidity with which some cases respond to the therapy.

In discussing the results obtained in this series of cases, it must, of course, be kept in mind that this type of disease tends to run a self-limited course. There has been no control group, so it cannot be said positively that the results obtained here would not have been obtained without recourse to shock therapy. However, some of these cases had been sick for a very long time with very little sign of improvement until shock therapy was instituted and improvement under treatment was so immediate and rapid that we are almost forced to admit that something happened to expedite their recovery.

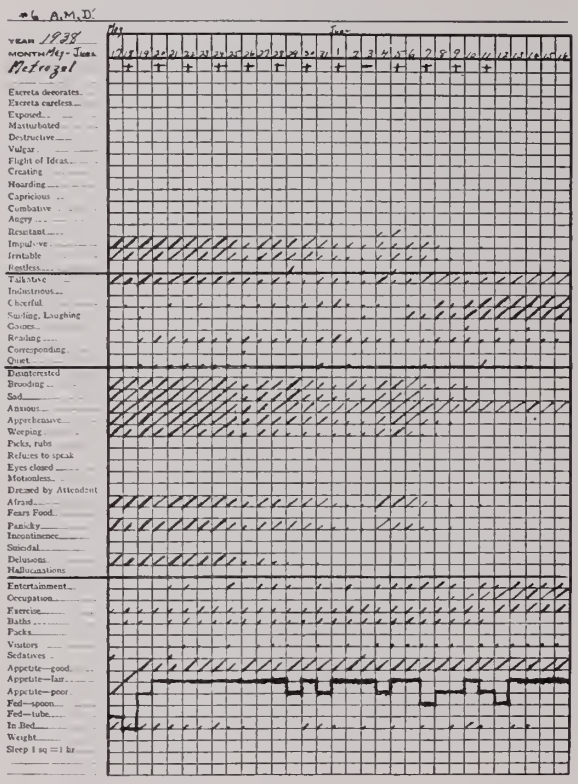
While several of these cases have not been out of the hospital long enough to draw conclusions regarding their subsequent course, yet it has been found true that, if these persons do not tend to relapse ten days or two weeks after metrazol has been stopped, they are not very likely to cease to improve.

Patients who suffer from manic depressive psychoses probably suffer more than the victims of any other disease and if there is anything that can be done to shorten their misery it would seem to be worthwhile. Certainly this series of cases demonstrates that in certain cases, at least, great relief can be obtained by using this form of therapy. Also this series demonstrates that metrazol therapy can be used without great danger in people above forty years of age.

In conclusion, then, the results obtained by the use of shock therapy in a series of twenty-one cases have been reported. There was immediate improvement in all; improvement on discharge in eighteen. A follow-up report made in September shows that fourteen are well or still greatly improved, five have had subsequent relapses, one that was not improved at discharge is still unimproved, and one, sent home slightly improved, committed suicide three months later.



Case 3.



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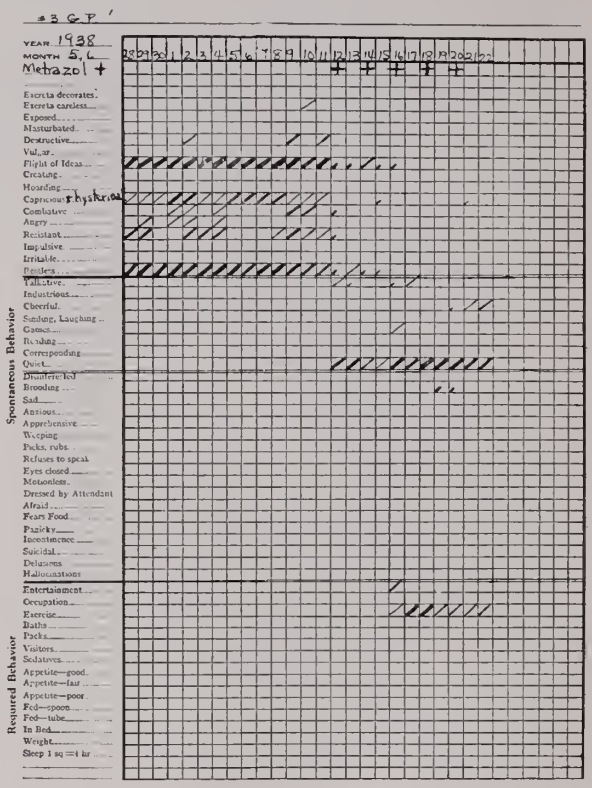
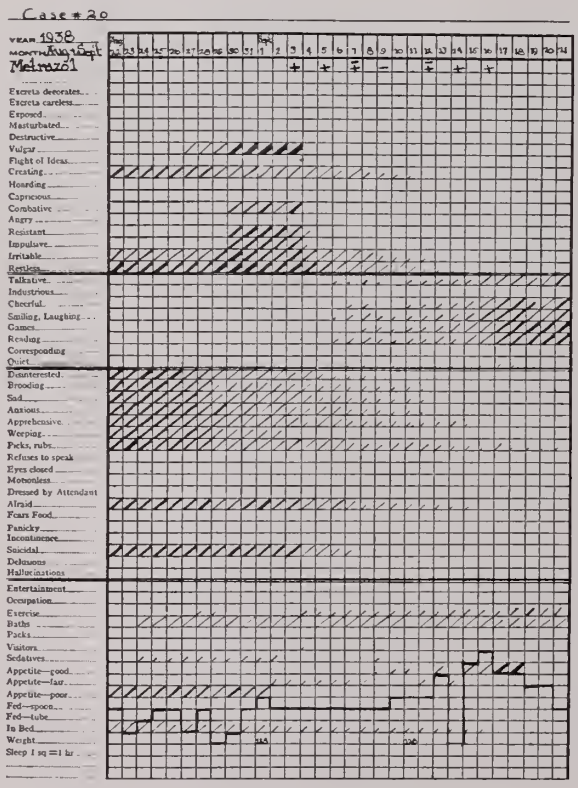


Case 20.



Case 19.

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DISCUSSION

DR. G. B. BARROW, Western State Hospital, Staunton: In the early days of shock treatment attention was directed to its effect on praecox and little notice was taken of the other psychoses. The doctor was somewhat in the position of Columbus when he first came to America; he did not know where he was going; he did not know where he was when he got there; he did not know where he had been when he got back. He did know, however, that he had discovered something that was worthwhile.

This mass of data is of value in that it gives the opportunity to observe the results and to compare the effects

in the different phases of the psychoses and, whenever good results were obtained, then to follow-up the lead. This is what Dr. Wilson has been doing. I believe he is bringing out some ideas that are of considerable scientific and clinical value. He is rather modest when he calls attention to the fact that most of these cases eventually recover. We know, however, that they often run this agitated depression with these fixed delusions for years and when shock is given and improvement follows immediately where there had been no evidence of improvement, we must admit that shock does the trick.

At Western State Hospital we have been giving insulin and metrazol shock to our praecox. We, like other workers in this field, have had best results in early catatonic cases.

Since talking to Dr. Wilson about his work, I have given metrazol shock to two cases of agitated depression, both of long standing, showing no symptoms of improvement. Both made immediate recovery.

We do not know what the shock does to the cortical mechanism, the ganglia and nuclei, nor to the mechanism concerned with the emotional connections between the cortex and the thalamic domain, but we are justified, however, in theorizing as to the clinical results of the action of the drug and as to why a person with depression will develop a fixed delusion and become agitated. I believe that in the development of depression we first have a slowing down of mental activity to an abnormal degree. In the normal individual mental activity varies with attention. Attention varies with the importance of the conscious content. In depression we first have psychic retardation; then the conscious realization of mental inadequacy to meet the situation presented; then comes fear and apprehension. On this basis the delusions are developed and elaborated; these delusions always follow the effect. In the process of recovery when psychic activity again approaches normal bounds, these delusions are liquidated by reasoning. When some particular delusion is so deeply fixed that it cannot be liquidated by this feeble returning reason, the patient becomes agitated and continues in this state. It may be that metrazol stimulates cerebral activity to the point of enabling the patient to overcome the dominance of the delusion; or it may be that it causes him to forget the delusion; or both, to the extent that he is able to function normally sufficiently long to regain his balance.

I believe this work of Dr. Wilson's is scientifically important and is theoretically and clinically sound and will stand the test of further application and study. These cases are the most pitiful and appealing of all the psychoses and if their misery can be shortened by one day the treatment is justified.

DR. R. FINLEY GAYLE, Richmond: I find myself in entire accord with what Dr. Wilson has said, and wish to congratulate him on the excellent results he has gotten in long standing cases of doubtful prognosis. He has reported a large number of depressed individuals treated with shock therapy. I am particularly struck with the age of his subjects, only three being under thirty; the oldest was sixty-two, and the average age was forty-five years. The duration of the illness in the larger number of cases was several years, and the prompt recovery in many of them is a very startling point brought out in his paper.

Another important fact, and a statement which I would question were it made by some, is that the five cases in which he got no improvement were those who did not take adequate treatment; in all other cases the symptoms were ameliorated or improved.

It is true that individuals with affective mental disorders tend to recover spontaneously, but it is not the rule for those who have been sick with the involutional type of melancholia for a period of many years to get well within a few weeks with any previously known treatment. Certainly if Dr Wilson's observations are correct, this type of shock therapy offers something worthwhile in the handling of these people—something that we have dreamed of, but few have had much hope of its being realized.

Insulin shock therapy, as also metrazol, is being employed in the treatment of the psychoneurotic states with varying results. Many psychiatrists are enthusiastic about its use, not only in these borderline mental states, but in the schizophrenic, and in the profound affective psychotic states. Other more conservative psychiatrists throughout the country are very skeptical of the whole procedure, and are playing a watchful, waiting game, before employing this method of treatment, except in a small series of cases. Others feel that we are not justified in the use of shock treatment, that there is no sound explanation of the reason that it should benefit a psychic disturbance. Dr. Wilson should be commended for not being extravagant in his claims.

It will be interesting to follow this work further from Dr. Wilson's service and from reports of others in various parts of the country. It happens that I am familiar with some of these cases and I am able to confirm the results in a number of them.

The drugs should be carefully and judiciously used, and they should not be used as a cure-all for mental disturbances. The number of cases is relatively small, and hasty conclusions should not be drawn until further proof is added.

DR. WILSON, closing the discussion: Case 17, of which Dr. Barrow spoke, is a good example of how one can be misled. This patient was quite agitated and upset when she entered the hospital. However, we gave her two convulsions by means of metrazol injections and she became apparently entirely well. She thought she was well, at least, and she insisted on going home. She left the hospital, in spite of everything we could do, on her way to Roanoke. Before she got there, however, she became so upset and confused she had to get off the train. The next thing I knew I heard from her family that she was in very bad shape and had to go to a hospital. She was taken to a hospital in Roanoke and from there to DeJarnette Sanatorium. There she has since had metrazol injections with convulsions and is improving again. This woman was in a very definite agitated depression and we obtained a false cure in her case. Cer-

tainly you can get such good results in many other cases from one or two injections, but they relapse later and, therefore, should not be discharged until you have had them under observation for at least a week or ten days after the last injection.

All cases, however, do not improve. There is one we mentioned which was treated for two weeks. She was a typical case of involutional melancholia. She finally insisted on going home. We considered at the time of discharge that she was entirely unimproved. Dr. Garnett, who has seen her since, claims that she is much better, but as far as our reports go she is considered as an unimproved case, in spite of four or five injections.

SOME NEWER VIEWPOINTS ON PEPTIC ULCER AS A CLINICAL PROBLEM.*

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Peptic ulcer can no longer be regarded clinically as merely a local disease of the stomach or duodenum. For the pathologist it may be only that, but the modern internist must concern himself, in addition, with the person who has the ulcer—with his heredity, with his physical, mental and emotional make-up, with the nature of his endocrine and his autonomic nervous equipment, with his environment and social status and with his personal habits of life. This means, of course, that the practitioner who treats a peptic ulcer must be more than a specialized gastroenterologist; he must be a physician in the broad sense of that term.

It must be admitted at once that our present knowledge of the relationships between ulcer and certain general characteristics of the person who has it is limited largely to an appreciation of their association, but that alone, it seems to me, is a challenge and a stimulus to further investigation. Whether or not the etiology of ulcer is proved eventually to depend on conditions outside the stomach or duodenum itself, such an established clinical association is of diagnostic importance and it seems to have a bearing on treatment. In discussing the subject of peptic ulcer with you, therefore, I must ask your indulgence if I place what you may consider undue emphasis on extra-gastrointestinal conditions.

Some of you may wonder that I should begin with remarks on the physical characteristics of the patient with ulcer, and yet Draper in this connection has stated that, for him who has learned to read it, the face of Man is an open book; and he feels that the diagnosis of some visceral diseases, based on facial and other bodily measurements, is as accurate as that based on all other available clinical tests. Be that is it may, he describes, as typical of the peptic ulcer subject, a facial conformation that is intermediate between the narrow one with close-set eyes of tuberculosis and the wide square one with a wide eye zone of primary anemia; also intermediate between the narrow face with widely spaced eyes of hypertensive nephritis and the rounder face with a narrower eye zone of gall bladder disease. He also has observed that the ulcer patient, as compared with the gall bladder patient, has a more acute costal angle, a more obtuse gonial angle, a narrower palate arch, longer teeth, less weight in relation to height and a more shallow chest. The older clinicians, without appreciating how they were doing it, recognized the type and were said to have diagnostic intuition. Shakespeare even, as has been pointed out, had the duodenal ulcer type in mind when he said: "Yond Cassius has a lean and hungry look; he thinks too much: such men are dangerous." We are all aware of the occurrence of ulcer in various members and in several generations of a family; and this hereditary factor may depend on the transmission of certain gross physical characteristics.

Equally important as a characteristic of the subject of ulcer is his psychic panel of personality. He usually is of a nervous temperament, worries unduly and is introspective. He is not nervous in the sense of being flighty and unstable; but fearful, highly sensitive, intense and strenuous. In the field of psychiatry he is schizophrenic. Draper says that he has little endurance, but is quickly rehabilitated by food, short periods of rest and relief from anxiety.

Cushing has called attention to the occurrence of peptic ulcer in subjects with organic lesions of the interbrain, presumably initiated through some imbalance of the sympathetic and parasympathetic ner-

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From the Gastro-Intestinal Section of the Medical Clinic, University of Pennsylvania Hospital.
*Read before the Medical Society of Northern Virginia at Winchester, Va., November 15, 1938.

vous systems. Comroe, of our clinic, has reported two cases associated with pituitary lesions. Peptic ulcer and its complications are rare during pregnancy; Sandweiss, Saltzstein and Farbman have investigated this experimentally and believe it is due to the large amount of antuitrin-S present in the body at that time; they also suggest that its relative infrequency in women may be due to the same factor. There is also some experimental work tending to show a relationship of peptic ulcer to adrenal dysfunction.

Peptic ulcer, furthermore, frequently develops in predisposed people when they are subjected to unusual emotional strain, to continued worry and anxiety. During the acute depression of 1929 I saw ulcer develop in a number of bankers, and I have seen it appear after a domestic upheaval or a great financial collapse. Sullivan has emphasized this psychogenic factor in ulcerative colitis. In the stomach it may operate by producing, first of all, pylorospasm, mediated perhaps through adrenal stimulation.

The use of tobacco or alcohol is believed by many to be of etiological significance, and doubtless either may be the precipitating factor in a person predisposed constitutionally to ulcer. Other personal habits which involve over-work, loss of sleep and nervous exhaustion probably act in the same fashion and deserve special attention in prevention and treatment.

Sex and age traditionally are of importance, but ulcer may occur at any age. Its predominance clinically in males (at least six to one) tends to suggest that focal infection is not such an important factor as we once thought. The age distribution seems to vary from time to time. Once it was considered most frequent in early adult life, but some years ago we found its acme of incidence in middle life; more recently our cases are younger. For this variation with time I have no explanation.

An excess of free hydrochloric acid in the stomach contents is commonly regarded as of etiological and diagnostic value, and certainly its association is very frequent, at least in duodenal ulcer. It is present in many normal persons, however, and presumably characterizes a certain constitutional type. Hurst believes that when a person with constitutional hyperacidity abuses his stomach in any way ulcer results, whereas when a person with a low acidity is subjected to the same influences he gets a gastritis, often eventually cancer. At any rate there is much experimental work, such as that of Dragstedt and Mathews and of Mann, to indicate that hyperacidity is a causative factor in the development of ulcer. Though it may not initiate the ulcer, the gastric acidity seems to have much to do with its progress and chronicity. Ulcer rarely is recognized in its absence. Furthermore, neutralization of the free hydrochloric acid is most important in cure, that clinical fact in itself indicating an etiological relationship.

I have discussed these various clinical aspects of ulcer chiefly from the viewpoint of etiology. They are also of diagnostic value, though the crucial considerations from that angle are, of course, the history and the roentgenological observations. On the history alone the physician can usually, but not always, make the diagnosis. The type of the discomfort, its characteristic relationship to the ingestion of food and the periodicity of its occurrence are the important points. These features are of particular significance when they develop in a person of the constitutional type described.

Today, however, one should not subject any patient to ulcer therapy without roentgenological confirmation of the diagnosis. At least a fluoroscopic examination is indicated, and if typical signs are not discovered, films should be secured. The X-ray has in our experience given a correct diagnosis in fully 95 per cent of the cases. Without its confirmation of the clinical diagnosis I do not believe that we are justified in putting patients on the long tedious regimen that is necessary for successful management. Furthermore, if the X-ray shows no ulcer, I believe the diagnosis should be seriously questioned and other possibilities investigated.

TREATMENT

The old controversy as to the medical or surgical treatment of peptic ulcer has largely subsided with the recognition by both internists and surgeons that when uncomplicated it is a medical problem, whereas, when complicated, it usually deserves surgical therapy. The only important exception to this statement involves the management of the grossly bleeding ulcer. I shall, therefore, after outlining briefly the generally accepted viewpoint regarding the medical aspects of therapy, devote special attention to the management of those cases that have massive hemorrhage as a complication.

To clarify a consideration of the therapy in its larger aspects, however, it is necessary first of all to refer to the other complications which, as stated, are

primarily the indications for surgical interference. These are perforation, obstruction, and malignant degeneration.

Although there are recognized some instances of perforation, the so-called "formes frustes" cases, that are promptly sealed off, do not give rise to general peritonitis or even localized perigastric abscess formation and that heal spontaneously, still perforation, when recognized, must be regarded as a clear indication for immediate operation. We are all familiar with the high mortality rate in those frank cases not subjected to surgery within the first twenty-four hours.

As to true pyloric stenosis, secondary to ulcer, usually duodenal rather than gastric, the indication for surgery is equally definite, though by no means so urgent. The problem in this instance is to determine whether the obstruction is merely transient or of a permanent nature. Often, incident to an active gastric ulcer and sometimes to an active duodenal lesion, pylorospasm or an edematous condition of the pylorus develops and gives rise to gastric retention with vomiting. Ravdin especially has called attention to an edematous condition of the gastric mucosa that is dependent on a low plasma protein content of the blood and that results from a low protein intake. Such cases ordinarily can be controlled medically and should never be operated on the basis of the stenosis alone. This constitutes a reason for delay of operation in all the obstructed cases. Only when they do not respond to a rational medcial regimen, thus indicating that the obstruction is permanent, is surgical interference justified; under those circumstances, however, it is clearly indicated and the results from gastro-enterostomy are better than in any other type of case.

Likewise, in dealing with gastric ulcer that is possibly malignant, it is important to make every effort to discover first of all whether or not the lesion is actually of that nature. That, however, is not easily settled and to wait for its determination may rob the patient of a chance for ultimate cure. It is the practice in some clinics to operate promptly on all patients having an ulcerative lesion near the pylorus or along the greater curvature of the stomach; in other clinics, after three weeks on a strict medical program, to repeat the roentgenological study and then to operate on those that have not showed a decrease in the gastric wall defect. We have found the latter method, originally suggested by Sara Jordon, of the Lahey Clinic, very helpful and by means of it have saved some patients from operation. It is certainly justifiable when the lesion involves the mid-portion of the lesser curvature, where lesions are so commonly benign. At the same time we must remember that the defect may fill with cancer cells or even mucus and food material and so give rise to an erroneous opinion as to healing. The presence of free hydrochloric acid in the stomach is not of value in this connection, since it is so common, even in adequate amounts, in pyloric cancer. If the history is short, the oozing of blood does not readily cease on a medical program and the X-ray does not show decided improvement, we are inclined, in spite of the age of the patient, to advise surgery.

Finally, one must refer to another group of peptic ulcer cases that in the end require surgery. The indication is not strictly speaking, a complication but merely unexplainable refractoriness to a medical regimen. These cases are usually in patients who have a marked constitutional tendency to ulcer, have hypersecretion and hyperacidity, and who, in spite of all reasonable medical procedures, fail to secure healing, have frequent recurrences of activity in the same lesion or readily form new ulcers. Even after a gastro-enterostomy they frequently develop a stomach or jejunal ulcer. Such patients, for cure, require a partial gastric resection.

Our chief interest at the moment, however, is in the medical management of the patient with a peptic ulcer. This must take into consideration all the etiological factors which we have referred to. On the basis of some of them, such as heredity and the physical conformation of the body, nothing can be done. With others, however, such as environment, personal habits, psychological factors and altered gastric secretion, much can sometimes be accomplished.

The situation is much the same as it is in pulmonary tuberculosis. Local measures directed toward the lesion itself are of great importance, and must not be neglected, but, first of all, the patient must be made to realize that he has a chronic illness, or at least a tendency to recurrence once the lesion has healed, and that he must reorganize his whole life in such a way as permanently to eliminate the factors that are prejudicial to his health. He may be able to continue his life work, and in the case of ulcer to be ambulant at all times, but he should develop a philosophical attitude, conquer his natural

tendency to fret and worry about things, avoid excessive responsibilities and undue physical and nervous strain of all kinds. He must especialy appreciate the necessity of certain changes in his habits of eating, give up tobacco and alcohol, if addicted to their use, and establish a fixed and more leisurely routine of life.

I admit that some patients, after a time, seem to be perfectly normal and many are able to return to their old habits without an ulcer recurrence, but so do some patients after an active tuberculosis. The tendency to a recurrence in both diseases, however, exists and the persons who most often have the recurrences are those who disregard the precautions that are prescribed.

Various special forms of treatment, such as particular dietary programs, the use of alkalies, of mucin, of histidin, have been advocated and all give reasonably good results, no one strikingly better than another. All, however, include some change in the patient's habits of living and some freedom from concern about himself, the latter sometimes involved, unconsciously perhaps, in his feeling of confidence in and dependence on his physician; and those things alone often are sufficient to bring about ulcer cure, no matter how irrational some of the special forms of treatment may be. This is an aspect of therapy that I believe to be of tremendous importance and one that has been overlooked by most writers on the subject.

To be entirely adequate, however, and to give the patient the best possible chance of ultimate and complete cure it is logical to include in the treatment all the techniques that have a rational basis. This should involve not only general measures designed to bring about psychological readjustments and relief from physical and nervous strain, but, in addition, the special procedures which have been proved to be of immediate and direct value locally.

The chief measures of proved local value are those which tend to prevent irritation of the ulcer-bearing area. The irritants may be of a mechanical or chemical nature. Coarse foods, which produce no injury of the normal gastric mucosa, such as nuts, the seeds of berries and fruits, fruit skins and the cellulose content of certain vegetables, may mechanically irritate the base of an ulcer, scrape off newly forming epithelial layers and lead to hemorrhage or perforation. Likewise, highly acid foods, such as many of the raw fruits and salad dressings, alcohol and the condiments, including salt, may chemically irritate the ulcer bed. Curiously, however, the most irritating substance is a normal product of the gastric mucosa itself, hydrochloric acid. Not only clinical observation but also such experimental work as that of Dragstedt and of Mann seem to show beyond all question that ulcers are produced, or at least made chronic, by the eroding action of hydrochloric acid and that ulcers tend to heal when the acid factor is eliminated.

To avoid the mechanical and chemical irritation of certain foods it is only necessary to eliminate them from the diet. To control the acid factor in the stomach secretion, however, is a more difficult matter. The secretion of the acid cannot be prevented, but fortunately, sometimes by food alone, it can be neutralized. Protein foods especially are helpful in this respect, but they at the same time stimulate a greater flow of acid. Milk and the carbohydrates are commonly depended upon for this action and, if frequently enough administered, they alone may keep the acid entirely neutralized. Fats are helpful in that thy prevent a too rapid emptying of the stomach. Meat extracts, such as consomme, because of their histamine content, perhaps should not be given; but in spite of this stimulating effect, meats themselves, when well cooked and well chewed, have never in my experience produced harmful effects.

The frequency of the feedings is important and usually at least six a day are indicated. I have often found it helpful to introduce a gastric tube from time to time, before feedings, to determine whether the acid is controlled. When not under control the frequency of the feedings should be increased, sometimes to hourly intervals, as Sippy advised.

At times the diet alone, no matter how frequently administered, does not control the acid and then small doses of an alkaline mixture may be given for short periods of time, but frequently I have not found that necessary. They should be avoided when possible because of the danger of mild sub-clinical alkalosis. I have often found that a patient's appetite and his general sense of well-being improved as soon as the alkalies were stopped and no other change in the therapy made. In order to avoid the possibility of an alkalosis some clinicians are now using aluminum hydroxide or magnesium trisilicate for neutralization of the gastric acidity. I have found both of these substances quite satisfactory.

Other drugs, except sedatives, are of questionable

value in my opinion. Belladonna in adequate doses reduces the acid secretion and perhaps tends to relax spasm, but its side effects are undesirable. Occasionally in obstinate cases silver nitrate seems to give relief, but must not be kept up for long periods, because of argyria. The sedatives are most helpful, bromides, chloral and the barbiturates, and should be used, to relax nervous tension, in most ulcer patients.

On such a program of therapy at least 60 to 80 per cent of uncomplicated cases recover. Recurrences are rare when the general measures outlined are adhered to. Reasonable care about the diet must be continuously exercised, but ordinarily after a few months the intermediate feedings can be dispensed with and a general well-balanced diet resumed.

Treatment of Massive Hemorrhage

The treatment of the grossly bleeding peptic ulcer deserves separate attention because as yet there is no unanimity of opinion as to how it should be managed. Some medical men still report a mortality of 15 to 25 per cent, and some surgeons a much higher figure. In a recent analysis of the records of sixty-eight cases in our hospital, Elsom and I found that the five cases operated in the midst of their hemorrhage died; that of fourteen operated after cessation of the hemorrhage one died, and that of the forty-nine cases treated medically only three died, a mortality of 6.1 per cent. We found, furthermore, that of 383 cases reported in the literature as having been operated for gross hemorrhage 28 per cent died, whereas the mortality was only 8.7 per cent for 5,843 cases treated medically.

At first thought one might say, on the basis of these data, that all the cases should be treated medically. Further analysis, however, is necessary and reveals that many of the cases, like our own five cases, were subjected to surgery only after it became obvious that they would not recover on a medical regimen. Thus such transfer to the surgeons of seriously ill patients raised the operative mortality and at the same time lowered that of the medically treated cases.

It is impossible to secure comparable groups treated medically and treated surgically, but some surgeons make a practice of operating on all cases and doing it early in the hemorrhage. Finsterer, for instance, by operating early in a group of fifty-one cases had a mortality of only 5.9 per cent. Ross, however, who also favors early operation, in a series of forty-three had a mortality of 60 per cent. On the whole the best surgical results were obtained when the operation was done after hemorrhage had ceased. It seems probable, however, that some cases that die on a medical program or after late operation could be saved by early operation. The difficulty lies in picking out the cases that will die without operation.

Let us, however, now consider the medical procedures available and their results.

The usual medical regimen includes complete rest and starvation during and for a few days after the period of bleeding and the free use of morphine during that time, followed by a simple diet such as that of Sippy or of Andresen. On this basis our cases, as well as most of those reported in the literature, were treated. The mortality has varied greatly, from 3.3 to 25 per cent, with most authors reporting from 5 to 15 per cent.

In contrast to this form of medical therapy Andresen proposed some years ago that the patients be fed immediately following a hemorrhage and he outlined a program including the routine use of a gelatin mixture. More recently Meuhlengracht, Copenhagen, has advocated feeding in the midst of the hemorrhage and has allowed a quite liberal diet including ground meats, pureed vegetables, bread and butter and tea. At the same time he has given alkalies, hyoscyamus and iron. He based his program on the observations, previously made by Andresen, that some ambulant cases recover without any dietary regulation, that some cases stop bleeding when fed and that some patients seem to die merely of exhaustion. He also believed that healing would be promoted by good nutrition and by controlling the acidity of the stomach contents.

Meuhlengracht's plan of management has attracted a great deal of attention because of his published results, only five deaths in 368 cases. Witts and Boyd, furthermore, applying his method, have had no deaths respectively in twenty and in fifteen cases. Gram had only four deaths in 106 cases. No other authors have reported a negative mortality except Lineberry and Issos (twenty cases) and they also fed their patients, though on a Sippy diet, in the midst of the hemorrhage.

Such results as these, reported by competent clinicians, force one to reconsider the entire matter of ulcer

therapy. If it is true that in the midst of one of its most serious complications, further ulceration ceases, open blood vessels close and healing takes place under the influence of little more than bodily rest and adequate feeding, one wonders if the measures directed toward the maintenance of normal bodily functions and good nutrition are not the most important therapeutic procedures for the uncomplicated case. That brings us again to the thought that it is the patient as a whole and not merely his ulcer that requires primary consideration.

Thus I have outlined some of the current ideas regarding the etiology, diagnosis and treatment of peptic ulcer and have attempted to point out in connection with each phase of the subject that the physician must consider not only the ulcer itself but also the person who has it.

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THE PRACTICAL VALUE OF GASTROSCOPY TO THE INTERNIST.*

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The history of practical safe gastroscopy began in 1932 with the introduction of the flexible gastroscope by Schindler and Wolf. The first attempt at gastroscopy was by Kussmaul in 1868 on a sword swallower. This was a failure because he was unable to get proper illumination through such a long instrument. The next attempt was by Mickulicz in 1881. For technical reasons he also abandoned its use. In 1922 Schindler described the use of the closed rigid tube. This was the beginning of clinical gastroscopy.[1]

The flexible gastroscope, as we shall show in this paper, has become a practical and reasonably safe instrument for studying the stomach in the same way that the cystoscope, the sigmoidoscope and the bronchoscope have been of value in studying their respective organs.

Gastroscopy is an office precedure and can be carried out there just as well as at the hospital provided one has two good assistants. The technique of Schindler, as described in his book on "Gastroscopy", is rigidly adhered to by us. Since March, 1938, we have done all of our gastroscopies in the office and we are satisfied that they were as well done as if they had been done in the hospital. Although we regard it as an office procedure, we are always cognizant of the potential danger of using force in the instrument's introduction and of the necessity for the proper study of the patient before the examination is performed.

We fully realize that gastroscopy is not the first examination to be done on the patient. The preliminary study should include the history, physical examination, blood count, Wassermann, urinalysis, gastric analysis, stool examination, fluoroscopy of the chest, and gastro-intestinal X-ray series. The reason for this thorough survey is to eliminate such contra-indications to gastroscopy as mechanical obstruction of the esophagus or cardia, esophageal diverticulum and cardiovascular disease, especially aneurysm.[2]

The problems encountered by the internist requiring gastroscopy fall into two groups: First, are those problems in which the diagnosis is doubtful or cannot be made, and, second, those in which the diagnosis has been made and gastroscopy becomes desirable either as a confirmatory examination or as a follow-up procedure.

PROBLEMS IN WHICH THE DIAGNOSIS IS DOUBTFUL

1. The first important group includes those patients who have symptoms of a gastric or duodenal ulcer in whom the X-ray findings are negative. Before we class these people as psychoneurotic or as having small hidden ulcers, a gastroscopic examination should be done. On examination, a small ulcer, erosion, mucosal hemorrhage or one of the types of gastritis may be found.[1]

2. The second important group includes those patients over thirty-five years of age who suffer from anorexia or significant loss of weight in whom there is no other explanation for the symptoms present. Attention was first called to this group by Schindler.[3]

*Read before the sixty-ninth annual meeting of the Medical Society of Virginia, at Danville, October 4-6, 1938.

The diagnosis of early gastric carcinoma is one of the most pressing problems today.[1] The last World Congress on Gastroenterology in Paris considered this a major issue confronting the medical profession and discussed X-ray and gastroscopy as being the best methods of precision in diagnosing these cases early. Too many people over thirty-five years of age complaining of loss of weight and loss of appetite are given bitter tonics and are not seen again until the family becomes alarmed or the patient has obstructive symptoms. Gastric surgery in the selected early case may offer a great deal to the patient.[3]

3. The third group is probably numerically the largest group of patients who consult the internist. These are the ones we call neurotic. Vague terms such as "dyspepsia", "nervous indigestion", "bowel distress", "nervousness", and "fatigue" are used by the patient and the doctor. In so many of these people we have placed the blame on "nerves", emotional imbalance, hyperacidity or hypocidity, when the real trouble was in the gastric mucosa.[1]

The symptomatology connected with gastritis is still on an unsettled basis and there is still confusion in classifying the different types of gastritis, but the classification of Schindler into superficial, atrophic and hypertrophic is the one generally accepted.[1]

The superficial is characterized by red hyperemic areas, with swollen folds and overlying mucus; the hypertrophic by a velvet-like swollen, nodular mucous membrane with large creases; and the atrophic by a thinned grayish-green membrane in the latter stages of which the blood vessels may be seen.[4]

The patient with nervous indigestion may have any one of the above types of gastritis or even a beginning carcinoma. Gastroscopy offers this group for the most part the only specific diagnosis. Roentgen mucosal relief studies are of some value in hypertrophic gastritis, but for superficial and atrophic gastritis they have been shown by Henning to be useless.[5]

While discussing this group of so-called neurotic individuals we should like to point out the value to the peace of mind of the doctor and patient alike of discovering a normal gastric mucosa. Negative findings are just as valuable in medicine as positive ones. J. B. Carey, in a recent article on gastritis, referred to the cases with functional complaints sent to him for gastroscopic examination by the clinician who desired a definite opinion upon which to base his discussion of negative findings with the patient.[6] The following is an illustrative case:

Case 1.—A. S., a white man, aged thirty-two, American, complained of pressure in epigastrium and belching of three years' duration. The pressure was worse on an empty stomach and was relieved by alkalies. There was no alcoholic history. On physical examination there was tenderness about two inches above the umbilicus. Urine, blood count, and Wassermann were negative. The gall bladder series and gastro-intestinal series were negative. The fractional gastric analysis showed no free hydrochloric acid present. The gastroscopic examination on July 10, 1938, showed areas of atrophic gastritis on the posterior wall and greater curvature of the pars media.

Comment: Undoubtedly gastroscopy was in this case the only method of arriving at the diagnosis. Without this examination the condition could have been called nervous indigestion.

4. Gastroscopy is of great aid in those cases of hematemesis or melena in which no cause of the bleeding can be ascertained by a thorough examination including X-ray. It is preferably done after the active phases of bleeding have subsided.[1] Benedict has recently reported twenty cases of gastro-intestinal hemorrhage studied by gastroscopy in which the only demonstrable source of hemorrhage was a superficial or hypertrophic gastritis. Usually one or more gastric erosions were found in these cases. Most of them were users of alcohol.[7]

PROBLEMS IN WHICH THE DIAGNOSIS HAS BEEN MADE AND GASTROSCOPY BECOMES DESIRABLE AS EITHER A CONFIRMATORY EXAMINATION OR A FOLLOW-UP PROCEDURE

First, in pernicious anemia and other macrocytic anemias it is of definite value in ascertaining the degree of atrophic gastritis and the improvement incident to treatment. It is well known that carcinoma is occasionally associated with a macrocytic anemia, so, in this sense, gastroscopy is necessary to confirm the diagnosis. R. M. Washburn and H. M. Rosendaal recently reviewed 906 consecutive cases of pernicious anemia and reported that gastric tumors numbered twenty-four cases. In sixteen cases gastric carcinoma was found, an incidence of 1.76 per cent.[8]

The following is an illustrative case of pernicious anemia:

Case 2.—V.J.N., a pattern maker, aged fifty-one years, consulted us July 23, 1938, complaining of

weakness of five months' duration. He was underweight, of a pale lemon yellow color and, on this date, the blood count showed hemoglobin 27 per cent, erythrocytes 1,190,000, color index 1.2, volume index 1.6, leukocytes 5,950, macrocytes, anisocytosis, poikylocytosis, polychromatophilia, basophilic stippling, and 2,700 reticulocytes. There was an achlorhydria. On August 13, after intensive liver therapy, the hemoglobin had risen to 73 per cent and the erythrocytes to 3,540,000. On August 16 a gastroscopic examination was done and there was a great deal of thinning out of the mucous membrane. There were some areas in which the blood vessels could be seen.

Diagnosis: Atrophic gastritis.

Comment: The value of gastroscopy in this case was to ascertain the degree of gastritis and to be sure there was no beginning malignancy. The case can be followed by future examinations to determine the degree of improvement.

Second, many cases of hypochromic anemia were gastroscoped by Moutier and Chevalier, and in many of these cases atrophic gastritis was found and successful results were obtained by the use of iron.[9]

The diagnosis of gastric ulcer is usually very easily made by X-ray examinations and, from the diagnostic standpoint, gastroscopy would be a superfluous examination. Aside from the value of confirming the diagnosis it is of value in following the healing of the ulcer and in determining whether it is benign or malignant. Although the ulcer may appear to be completely healed according to X-ray, on gastroscopy it may be found to be still open.[1] In this way the treatment can be continued until complete healing can be demonstrated by direct vision.

In those cases of gastric ulcer which may be surgical a preliminary gastroscopy will determine the amount and extent of gastritis associated with the ulcer and give the surgeon a choice of operation.[10–11]

In carcinoma of the stomach gastroscopy is a useful supplement to radiology. Advantages for gastroscopy in differentiating between benign and malignant ulcers have been claimed by Schindler.[1] He has pointed out that the benign ulcer has a yellowish white floor and a sharp discrete edge, whereas the carcinomatous ulcer has a dark brown or violet floor with an irregular edge and an infiltrated rigid surrounding mucous membrane. The other types include the solitary polypoid carcinoma which appears lobulated and projects over the general level of the mucosa and has a sharply limited edge, and the scirrhous growth which diffusely infiltrates the stomach either partially or completely. Both Henning and Schindler report that the gastroscopic examination in these cases reduces exploratory laparotomy to a minimum.[1–4] The operability of the lesion can be determined by gastroscopy.

The next condition in which gastroscopy is valuable as a follow-up is in the post-operative stomach.[1] Chronic gastritis of all types and degrees is the most frequent pathology found. Marginal, recurrent, and jejunal ulcers are sometimes seen. Schindler has called attention to the relative lack of gastritis in those cases in which the stoma showed a rhythmical adaptation. The following is an illustrative case:

Case 3.—O.P.J., white, male, aged thirty-two, American, with a history of duodenal ulcer with pyloric stenosis and obstruction, on whom a partial gastrectomy and anterior Polya with anastomosis of the proximal and distal loops was done on December 29, 1937.

On June 20, 1938, gastroscopy showed a normally functioning stoma, a very mild superficial gastritis and a silk suture hanging from the edge of the stoma.

Comment: Although this patient has no complaints at the present time it may be necessary in the future to remove the suture.

The unusual case of syphilis, lymphogranulomatosis and tuberculosis of the stomach should be mentioned as indications for gastroscopy.

SUMMARY

Gastroscopy is of value to the internist, first, as an aid to diagnosis in those cases in which the diagnosis is doubtful, and, second, as a confirmatory examination or follow-up procedure in cases in which the diagnosis has been made. It is of aid in diagnosis in:

1. Ulcer-like cases in which no pathology can be found.
2. Cases over thirty-five years who have lost weight and have anorexia.
3. Psychoneurotics with digestive symptoms.
4. Cases with hematemesis and melena.

It is of value as a follow-up procedure in:

1. Pernicious anemia and other macrocytic anemia.
2. Hypochromic anemia.
3. Gastric ulcer.
4. Gastric carcinoma.

5. The post-operative stomach.
6. The specific granulomata.

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DISCUSSION

DR. PORTER P. VINSON, Richmond: We are indebted to Dr. Mewborne and Dr. Alexander for their conservative and interesting summary of this fascinating method of studying the interior of the stomach. There is very little to add to what they have described except to say that I believe this examination, which can be done with relatively little risk and very little discomfort, should be based upon the question of the lack of pathology in the esophagus. One should be certain that the esophagus does not harbor a lesion before introducing the gastroscope. This does not mean that the patient should be esophagoscoped before passage of the gastroscope; as a matter of fact, esophagoscopy entails more risk than gastroscopy. If, however, the patient has difficulty in swallowing or if there is any previous evidence of obstruction of the esophagus, then esophagoscopy should be performed before introduction of the gastroscope.

There is certainly no more tragic page in American medicine than carcinoma of the stomach. Before we use gastroscopy to diagnose lesions of the stomach, we should become familiar with the early symptoms of gastric carcinoma. Then patients should be sent for X-ray examination. If the X-ray examination is negative or if the lesion is undetermined, gastroscopy should be employed. There has been a tendency on the part of roentgenologists and gastroscopists to pit one of these examinations against the other. Neither should be depended upon absolutely. Of the two, I should not hesitate to say that roentgenoscopy in the hands of the average roentgenologist is to be preferred to gastroscopy by the expert.

A negative gastroscopy does not mean that there is not a lesion in the stomach. I have always been uncertain as to just how much of the interior of the stomach I could see through the gastroscope. Then, too, certain abnormal areas of the stomach differ so little in appearance from the normal that I can never be sure they are not infiltrated with carcinoma. It is likely that forceps will be devised to pass along beside the gastroscope to secure a specimen of tissue from the mucous membrane of the stomach for a microscopic examination.

We should not be led astray by finding areas of erosion of the mucosa of the stomach and attribute unrelated symptoms to gastritis. Gastroscopy as a means of examining the stomach has come to stay, and we should feel deeply grateful to Dr. Mewborne and Dr. Alexander for their efforts in furthering this interesting method of study.

DR. ALEXANDER: This work was done largely by Dr. Mewborne. While I am very much interested in the general subject of "gastroscopy" I have been particularly interested in a group of urticarial patients. I have been interested in knowing what happens in the gastro-intestinal tract, if anything, when there are urticarial lesions of the skin. A very interesting paper by Drs. Chevalier and Moutier of France, to which Dr. Mewborne has referred, points out that visceral lesions associated with urticaria are rather frequent and are manifested by the presence in the stomach of atrophic gastritis. They pointed out further that a patient may have a relatively mild urticaria and yet have rather marked atrophic gastritis, which may be termed visceral urticaria. They found, furthermore, the administration of large doses of iron in these cases of so-called visceral manifestations of urticaria improved them a great deal.

A lot more will be said about gastroscopy as time goes on because it is another method of direct vision of a mucous membrane.

We had a patient some time ago who two years ago began to show some manifestations of nasal allergy when he acquired some chickens for the poultry business. He had never had any nasal symptoms before. When he came to our office he had rather marked urticarial lesions all over his body. By sensitization studies we found him sensitive to three or four foods and of course chicken feathers, one of the foods being peanuts. Later he came to our office following a rather acute attack of urticaria after eating peanuts. A gastroscopic study was done and a rather marked gastritis was found.

One of the reasons for presenting this paper to you is that the subject of gastroscopy has been interesting and helpful to us and we trust that it will be to you.

DR. MEWBORNE, closing the discussion: I thank Dr. Vinson for discussing the paper. I thoroughly agree with him that the esophagus should be carefully investigated before gastroscopy is done.

ECONOMIC STATUS AND THE CONTROL OF CANCER.*

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Cancer is an ever-growing responsibility of the medical profession, and an increasing economic and humanitarian problem. The control of cancer is one of the most urgent of present-day medical tasks. Fortunately, through the activities of the profession and of such organizations as the American Society for the Control of Cancer, public interest in cancer is increasing and public moneys are already available for application to its control.

Neither private nor public funds, however, can be intelligently expended without a knowledge of the problem in detail. For that reason, the Health Commissioner of Virginia at the suggestion of the McIntire Tumor Clinic of the University of Virginia initiated and completed a partial survey of the incidence of cancer in the State. Although the survey was necessarily incomplete, as is pointed out below, and although its results have not yet been thoroughly analyzed, one group of correlations of considerable suggestive importance to anyone interested in the problem of cancer has been made the subject of this brief report.

METHOD

A "Cancer Survey Record" card (Figure I) for each individual case of cancer was designed and printed. In addition to the usual statistical inquiries, including name, address, age, sex, race, etc., the following information was requested: the name of the physician in charge of the case, the economic status of the patient divided into four classes (charity, part pay, full pay, well-to-do), the tentative and final diagnosis, the fact or absence of microscopic study, the location of the lesion, the date of the first symptom, the date of the first visit to a physician on account of the presenting symptoms, the treatment both before and after seeking medical advice, the physician's estimate of the prognosis, and the date of death, if the patient succumbed. These cards were distributed in the summer of 1937 to the Health Officers of the fifty counties at that time organized under the State Board of Health. Each Health Officer was instructed to deliver cards to each physician in his county, requesting the completion of a card for each patient that had consulted him for malignant disease during the preceding twelve months. The cards were then collected by the Health Officers and forwarded to the Health Commissioner, who, in turn, sent them to the McIntire Tumor Clinic for preliminary tabulation. Any duplicate reports on individual cases from different physicians were first eliminated.

FIG. I
CANCER SURVEY RECORD

No.
Physician Date
County (City)
Name of Patient Color Sex Age
Address
Economic Status: Charity ; Part pay ;
Full pay ; Well-to-do
Diagnosis—Tentative:
Final
Microscopic Section Made?
Location of Lesion
Date symptoms first noted by patient
Date of first visit to physician in regard to symptoms
Treatment: Before physician consulted
After physician consulted (including places and dates)
Prognosis (if dead, date and cause)
(Note: Refers to patients seen in past year)
Signed H.O.

Virginia State Department of Health.

RESULTS

The incompleteness of the survey is at once obvious. Only half the counties of the State could be covered and only forty-three counties* furnished reports. Furthermore, many physicians in the counties

*From the State Department of Health, Richmond, Va., and the McIntire Tumor Clinic, University of Virginia School of Medicine, University, Va.

*Albemarle, Alleghany, Arlington, Augusta, Brunswick, Buchanan, Buckingham, Dickenson, Dinwiddie, Fairfax, Greene, Halifax, Hanover, Henrico, Isle of Wight, Lee, Lexington, Madison, Mecklenburg, Montgomery, Nansemond, Norfolk, Northampton, Nottoway, Orange, Page, Prince Edward, Pulaski, Rappahannock, Rockbridge, Rockingham, Russell, Shenandoah, Smyth, Southampton, Spotsylvania, Sussex, Tazewell, Warren, Washington, Westmoreland, Wise, Wythe.

covered failed to fulfill the requests of the Health Officers. Finally, the records of a small proportion of cooperating physicians were inadequate to supply a complete detailed report on all cases seen by them.

Cards representing a total of 770 cases were collected, of which 651 were white, 105 colored, and 14 unspecified. 296 patients were dead, 435 alive, and in 39 instances the survival of the patient was not indicated. The commonest locations of the lesions (Table I) were the uterus (151 cases), the

TABLE I
OCCURRENCE BY LOCATION IN THE BODY

Uterus	151	Leg	9
Breast	129	Kidney	7
Face and Scalp, etc.	126	Brain	5
Stomach	78	Esophagus	5
Liver	39	Larynx	5
Prostate	29	Small Intestine	5
Rectum	29	Vulva	5
Bladder and Urinary Tract	17	Arm	4
Ovary	17	Mouth	4
Bones	16	Testicle	4
Colon	16	Thyroid	4
Lung	15	Tongue	4
Hand	14	Fallopian Tubes	4
Respiratory (Upper)	13	Appendix	3
Pancreas	11	Penis	3
Gall-bladder	10	Parotid	2
Lymph Nodes	10	Vagina	2
Neck	10	Back	1
Abdominal Viscera	9	Bile Duct	1
Eye	9	Urethra	1
		Total	826

The total number of sites shown (826) is greater than the number of reports (770) because, when the malignancy occurred in more than one location in the same patient, it was counted each time as an occurrence in that organ.

breast (129 cases), the skin of the face and scalp (126 cases), and the stomach (78 cases). The total number of lesions shown in Table I (826) is somewhat greater than the total number of cases because in many instances the cancer was recorded by the physician in more than one site (e.g., large bowel and liver).

Two of the most important factors in cancer control are, of course, the prompt availability of adequate medical attention and the ability of the patient to make use of what medical services are available. An attempt to measure the latter was made by comparing the economic status of the patient with the interval between the first symptom and the first medical advice. In 751 instances of the total 770, information as to economic status was furnished.

TABLE II
DISTRIBUTION OF ECONOMIC STATUS

(In 625 reports in which the interval between the first symptom and the first visit to a physician was recorded.)

Pay	No.	%	Charity	No.	%
Well-to-do	34	5.4	Part pay	161	25.8
Full pay	308	49.3	Free	122	19.5
Total	342	54.7	Total	283	45.3

Somewhat over one-half of these (399) represented either well-to-do or full-pay patients, and 352 part-pay or charity patients. In 625 instances of the 751, information was also furnished covering the interval between the onset of symptoms and the first visit to a doctor. The distribution of economic status in this group of 625 was roughly proportional to that of the group already cited (Table II).

TABLE III
RELATIONSHIP OF ECONOMIC STATUS TO PROMPTNESS OF MEDICAL CARE IN 625 CASES

Interval Between First Symptom and Medical Attention	Full-Pay Patients (342)	Part-Pay and Complete Charity Patients (283)
Up to 1 week	24.2%	14.8%
Up to 1 month	38.0%	25.7%
Up to 6 months	63.4%	56.8%

Table III presents the results of comparison between the economic status of the patient and the interval of delay between the first symptom and the first visit to a physician in these 625 cases. It is seen that, whereas almost a fourth of the patients able to pay consulted a physician within a week, only a seventh of those in the partial or complete charity group did so. The difference is slightly less striking after a month has passed by and almost disappears at six months.

COMMENTS

The incompleteness of the survey makes any conclusions on the actual size of the cancer problem in Virginia impossible in the present stage of analysis of the data. It is expected that further statistical study may render the results of the survey more valuable. If, for instance, one compares from the books of the Registrar of Vital Statistics the number of deaths from cancer in a county with the number of deaths reported in the survey, the degree of accuracy of the survey in that county can be estimated and an approximation to the true total number of cancer cases reached. Such evaluation studies are in prog-

ress in the office of the Commissioner of Health.

The interesting comparison between economic status and promptness in seeking medical advice, which is the reason for this presentation, needs little comment. It is obvious that delay in going to the doctor is appreciably greater among the poor and the completely dependent than among those able to pay. That this is entirely a function of the economic status is not necessarily true. Ignorance and superstition are unquestionably both more prevalent among the lower income groups, and these factors may be the predominating cause of delay. In other words, the results of this comparison cannot be taken as an index of the availability of medical services. In a more positive sense, they can be taken to indicate the necessity for both an increase in medical opportunities for the low income class and an intensification of the present educational campaign about cancer. They seem to point to a need for reaching with information about cancer a group in the Commonwealth that existing campaign methods through clubs and printed literature are not apt to reach.

Finally, it is interesting that about 20 per cent of all patients seeking cancer treatment are actually without funds and that nearly one-half may be considered in an underprivileged group. If these figures, derived in a somewhat selective way, could be applied to the general population, the magnitude of economic distress in Virginia in the year 1937 should be considered appalling.

THE COMPENSATORY MECHANISMS IN ANEMIA.*

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The animal body is an extremely unstable system, a delicately balanced equilibrium oscillating within narrow limits, the resultant of many forces acting in various directions. To every external change, small or large, it replies with definite reactions tending to the re-establishment of its equilibrium. A constant succession of actions and reactions is taking place in the body. The study of any disease therefore involves much more than the changes occurring in the affected organs or tissue, but the changes, passive and reactive, occurring throughout the whole body in an attempt to re-establish equilibrium or maintain health. This "synthetical" pathology takes the whole body into consideration. Without this our studies are meaningless.

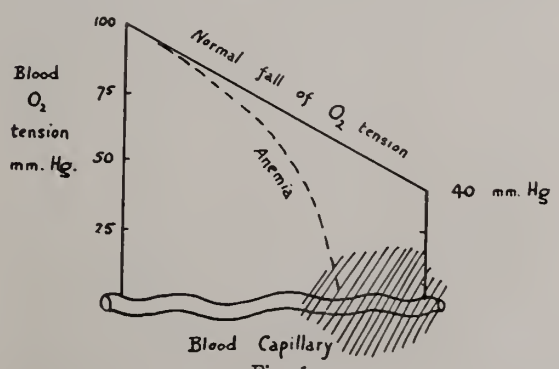

Fig. 1.

No better example of this general proposition could be found than the body changes in anemia.

Normally, arterial blood enters the capillaries with an oxygen tension of about 100 mm. Hg., and leaves with the tension reduced to about 40 mm. Hg. In anemia, however, although arterial blood enters with the same oxygen tension, there is such a shortage of oxygen that a large proportion of this gas is absorbed from the blood, and the tension falls. The tension may be too small for oxidative processes. Unoxidized katabolic products accumulate in the tissues, together with CO_2 (Fig. 1).

The organism, therefore, is faced with two problems, the restoration of the oxygen supply and the removal of CO_2 and katabolites.

The various compensatory measures adopted may be classified thus (Table A).

TABLE A
COMPENSATORY MECHANISMS IN ANEMIA
(Oxygen Supply and CO_2 Removal)

A. *Blood*
- Greater dissociation of HbO_2 at low O_2 tensions
- Utilization of oxygen reserve
  - (Increased hemoglobin concentration in red cells)
  - (Alterations in specific oxygen capacity of hemoglobin)
  - (Diminished size of red cells)

*Read before the sixty-ninth annual session of the Medical Society of Virginia, at Danville, Va., October 4-6, 1938.

B. *Blood-Forming Organs*
- Spleen contraction
- Bone marrow, new blood formation

C. *Circulatory*
- Dilatation of capillaries
- Increased cardiac output

D. *Tissues*
- (Lowered metabolism)
- Increased tolerance
- Increased muscle hemoglobin

E. *Respiratory*
- Hyperpnea
- Increased vital capacity

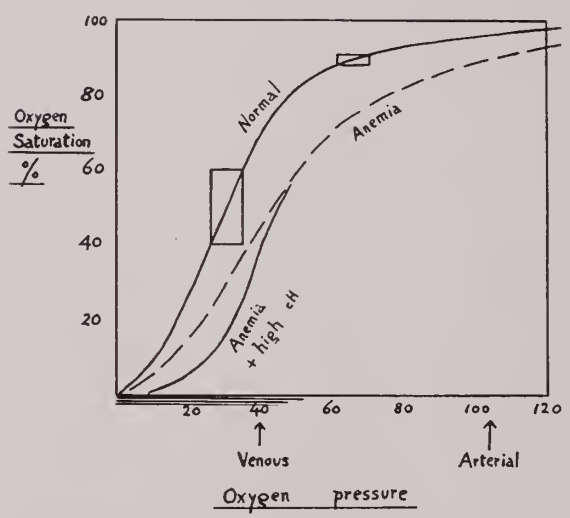

Fig. 2.

A. *Blood Changes:*

1. Increased dissociation of HbO_2 at low oxygen tensions. A glance at the oxygen-dissociation curve for blood (Fig. 2) shows that at low oxygen tensions the curve falls rapidly, i.e., for a given fall in oxygen tension, larger volumes of oxygen are given off. Thus anoxic tissues obtain a large amount of oxygen until the tension is restored. In anemia, however, the dissociation curve is on a slightly lower level which reduces the oxygen volume dissociation, but this is counter-balanced by the rise of cH in the tissues, which steepens the curve at the lower tension levels once more.

2. Arterial blood contains 20 per cent and venous blood 14.5 per cent oxygen, i.e., the A-V difference is 5.5 volumes per cent (Fig. 3). With increasing anemia this A-V difference remains unaltered, until at about 40-50 per cent Hb the A-V difference diminishes. This might be brought about by a diminished consumption of oxygen by the tissues, or by a larger blood flow through the tissues. Of these two possibilities only the latter occurs (see later).

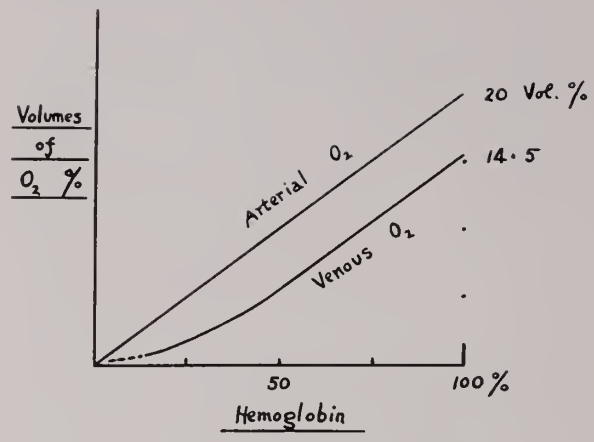

Fig. 3.

3. Theoretically the carriage and dissociation of oxygen might be facilitated by an increase in the Hb concentration in red cells, by a diminution in size of red cells (thus giving a greater surface per unit mass of cells) or by an increased specific oxygen capacity for Hb. There is no evidence however that these changes occur as a compensatory measure.

B. *Blood-Forming Organs:*

1. Splenic contraction occurs as an emergency measure as part of a general sympathetic-adrenal activity. In sudden anoxias, e.g., after hemorrhage, or at high altitudes, contraction forces more red cells from the splenic reservoir into the blood stream. Our own observations at moderate altitudes show that this effect lasts only a day or two.

2. Bone-marrow activity is a slower, long-range mechanism for new blood formation, provided the necessary factors are present, i.e., Castle's intrinsic factor, the extrinsic factor, iron, copper vitamin C and thyroxin.

C. *Circulatory:*

1. Dilatation of extra capillaries is the direct effect of the action of unoxidized katabolites resulting from oxygen shortage. Such dilatation of more and more capillaries ensures a sufficient oxygen tension throughout the tissues, but it demands a larger cardiac output to fill them with blood at the same rate of flow.

2. Increased cardiac output does not take place until the Hb has fallen to about 40-50 per cent (Fig. 4). With further fall, the output increases at a greatly accelerated rate. This is due to an increased stroke volume, and hardly at all to increase of rate. Thus the same blood can be used over and

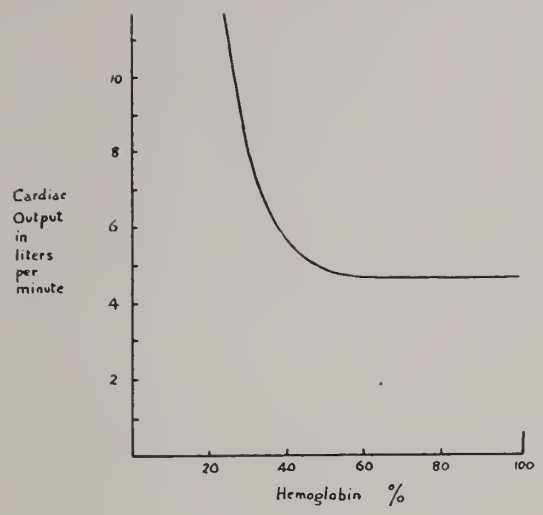

Fig. 4.

over again—a great turnover; CO_2 and katabolites are swept out of the tissues; and the blood pressure is maintained (thus balancing the tendency to fall owing to diminished viscosity of blood). The increased blood flow also accounts for the diminishing arterio-venous oxygen difference when Hb falls below about 40 p.c. (Fig. 3). This increased cardiac output may result in cardiac hypertrophy, especially in those doing heavier work.

The immediate cause of the greater output is uncertain. Various factors contribute, e.g., increased respiration (respiratory pump action), decreased blood viscosity and veno-constriction accelerating venous return to the heart. It is difficult to determine where this cycle commences. There is no increase of blood volume, except in chlorosis, hookworm anemia, etc.

D. *Tissue Changes:*

1. Metabolism, if decreased, would help the oxidation problem, but there is no evidence of decrease. Rather, there is some increase, probably due to the increased work of the heart and respiratory muscles.

2. Tolerance: Body cells can adapt themselves to a lower oxygen tension if given time, and thus allow anemic patients more comfort at rest. Indeed, very low tensions may in time be tolerated. But fatigue and lassitude are the result.

When Hb falls to 30 per cent there is danger of irreparable damage if prolonged. Below 20 per cent, the patient does not last long. The increasing cardiac output cannot keep pace with the falling oxygen content. The result is cardiac dilatation, diminished cardiac filling, and finally failure.

3. Muscle hemoglobin is the dark red pigment of muscle and is quite different from blood Hb. It has the property of abstracting oxygen from circulating blood under greatly reduced tensions, thus allowing oxidations to be maintained beyond otherwise impossible limits, e.g., at 20 p.c. Hb or less. In pernicious anemia muscle Hb increases as blood Hb falls. Some authorities believe this to be the chief compensation in this disease.

E. *Respiratory:*

Although pulmonary hyperventilation can have no effect in increasing the oxygen saturation of the blood and therefore the oxygen supply to the tissues, it is of value in other ways.

Owing to its low red cell content, the buffering power of the blood, or its ability to take up CO_2 and other acids with minimal rise in cH, is diminished. CO_2 and other acids therefore tend to accumulate in the tissues, with rise of cH. This leads to stimulation of respiration (in depth but not in rate) with

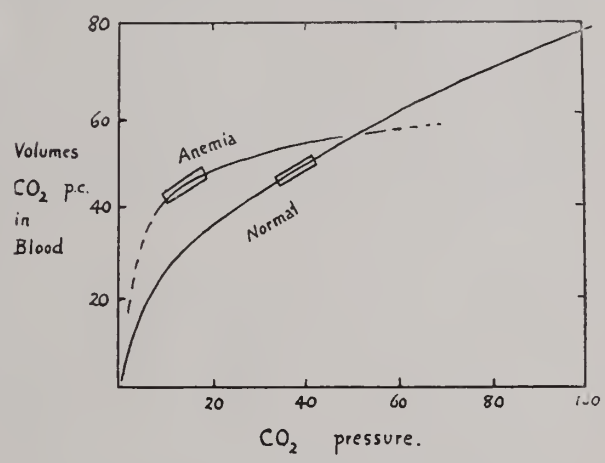

Fig. 5.

the following results: (a) CO_2 tension of blood and tissues fall to subnormal levels. As a glance at the CO_2—dissociation curve for blood shows, more CO_2 is taken up per unit rise of CO_2 tension when the tension is low than at high tensions, thus compensating for the poorer buffering power in anemia (Fig. 5). (b) Increased activity of the respiratory "pump" facilitates an increase of blood flow into the heart, of cardiac output, and therefore of blood flow through the tissues, and thus helps further to sweep out CO_2 and katabolites from the tissues and maintain normal pH.

In time, and especially in those engaged in heavier work, hyperventilation leads to enlargement of the

chest and increased pulmonary vital capacity. Although in our experience, the respiratory center becomes more sensitive as a result of moderate acute anoxia (a condition that may last for many days), the reverse happens in long continued anoxia, an increased tolerance.

DISCUSSION

DR. WILLIAM B. PORTER, Richmond: I shall not attempt to discuss Dr. Apperly's paper from a technical standpoint, but merely point out the direction in which this study leads us. One must be increasingly impressed with the difference in the reaction of individuals to the same disease process. In the presentation of these very interesting data, Dr. Apperly has been discussing what he refers to as compensatory mechanisms which go into play to protect the individual in the event there is a definite and positive diminution in the oxygen-carrying capacity of the blood. The compensation, however, is never a complete process. It always compromises the integrity of the organism because of the fact that it draws upon those reserves which are inherent in all individuals to protect him when he is put under unusual stress. When disease processes or alterations in certain essential physiological mechanisms draw upon these reserves, the capacity of the patient to resist disease is naturally compromised. The availability and the character of these various mechanisms which we refer to as compensatory may be re-interpreted in the terms of what you and I, as clinicians, refer to as resistance to disease. This seems to me to be a very fundamental point in the application of Dr. Apperly's studies to the clinical study of disease.

When we review and try to visualize what disease really is, as we see it in clinical practice, we come to the following conclusion: that disease is a reaction, or the result of a reaction, which is an interplay between the effects of the invasion of the human organism or the animal kingdom by various toxic agents—either bacterial, chemical or physical—or the results of biological decay and the introduction into the field of these mechanisms to re-adjust the individual; it is the interplay between these compensatory processes on the one hand, and the reaction of the individual to these agents on the other hand, that we visualize in the individual patient as disease. Disease is not an absolute factor; it is a relative factor. The more evenly these compensatory factors are distributed over the organism, the more perfect is this adjustment because it renders less likely the giving way of some vital process. In other words, it is similar to distributing responsibilities over a committee rather than to a single individual.

In the application of these facts to clinical medicine, it becomes apparent that in the treatment of disease we possess few so-called specific remedies. In the combating of disease processes and in the enabling of the individual to recover from disease, it is incumbent upon us in our approach to clinical problems to think in terms of what the processes are that are going into play to enable the individual to recover from his disease; and in our therapeutic efforts we should invariably take the line which promotes the development of these compensatory processes and not hazard their development. I think this is beautifully illustrated in the processes which take place in certain diseases which I should like to mention, but for which I have not time.

VARICOSE VEINS OF THE BROAD LIGAMENT.*

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Varicose veins of the broad ligament do not receive the attention they deserve in considering the causes of pelvic pain in women. The standard textbooks give very little consideration to this subject and very little is said regarding the diagnosis and treatment. It is natural to think that the average doctor would get the impression that this condition is rare and very seldom thinks of it as a cause of pelvic pain and therefore overlooks many cases. There are many cases who go from one doctor to another with a diagnosis of pelvic neurosis, hysteria, etc. I certainly feel that in treating women with pelvic compaints, this condition should be borne in mind, for, unless thought of, it is very easily overlooked. Unless corrected, complete relief will not be secured, and if allowed to go on it may lead to still more disabling diseases.

The literature on the subject is limited in comparison to other equally important subjects. The first American case was reported by Dwight in 1877. In 1888 Dudley described varicocele of the broad ligament and reported four cases. Emege in 1921 and 1925 gave a good anatomical discussion and reported fifty-nine cases. Darnall in 1914 reported six cases. There are in addition to these papers many other scattered reports.

In discussing this subject it is necessary to understand the anatomical considerations involved. The pelvis is well supplied with veins through five or

*Read before the Southwestern Virginia Medical Society, at Blacksburg, Va., September 22, 1938.

more well defined groups: vaginal, uterine and hemorrhoidal, which drain into the inferior hypogastric vein; and the two pampiniform plexi which empty through the ovarian veins. The right ovarian vein empties directly into the vena cava, the left into the left renal vein. There is only one valve in this system, and it is located at the end of the right ovarian vein. Most of the venous group is fairly well supported by the surrounding tissue except the pampiniform plexus. Veins which run close to the large arteries such as is seen in close association of the uterine artery and vein are not often varicosed. The artery fortifies the vein and tortuosity is prevented. The support of the pampiniform plexus is very poor, the only real support being at the uterine ends, the ovarian ends hanging free like a hammock, the only fixation occurring higher, at the point where the ovarian passes over the brim of the pelvis. There are two portions to each plexus, one above and one below the hilus of the ovary. The lower half is very tortuous and consists of numerous branches. These veins are very poor in muscle fibres and the loose surrounding tissues, through which they pass, offer very meager support. As a result they are very tortuous and distended. The first three or four inches of the ovarian vein passes between two layers of peritoneum with very scant supporting tissue. This strikingly predisposes to back pressure. The ovarian vein is first firmly anchored at the pelvic brim with the distal end attached to movable organ, uterus and ovaries. The mobility of these parts, with a fixed point at the pelvic brim, tends strongly to tortuosity. It is a mechanical problem.

Varicose veins of the broad ligament are seldom found in women who have not been pregnant. Any backward or downward position of the uterus will interfere with venous drainage. Retro-version-flexion is a common causal agent which kinks or distorts the veins at the pelvic brim. Pregnancy with subinvolution and pelvic engorgement is considered the most important factor. All of us have probably observed during Cesarean section the engorged condition of these veins, and can easily imagine that if subinvolution occurs, and this distention persists, permanent dilatation can easily result. Associated conditions as constipation, ptosis, disturbed menses, frequent ungratified sexual excitement, certain heart lesions, diseases of the liver, all tend to aggravate the condition.

In long standing varicose veins in the female pelvis, there is a chronic passive congestion that leads to degenerative changes in the pelvic organs. The ovaries are usually the first affected, showing cystic changes, later fibrous. The uterus is also involved; the endometrium becomes edematous and hyperplastic. The cervix is enlarged and boggy and later the fundus hypertrophies and the muscles undergo fibrous degeneration, giving the so-called fibrosed uterus.

SYMPTOMS

The prominent presenting feature of this condition is pain. It is of a rather distinct character and if carefully studied will help greatly in arriving at a diagnosis. Ordinarily the patient complains of a pain or distress deep in the pelvis, on both sides, usually worse on the left side. It is of a deep dull aching character, aggravated by being active, especially lifting or taking long walks, and quickly relieved by the recumbent position or better with foot of the bed elevated. In many cases the patients think they have "ovary disease". The condition is more or less like the same process found in the male. We know that scrotal varicocele gives a dragging sensation, with pain and disability. There are many such cases in the male, however, that do not give disabling symptoms, and why, I do not know. Probably the threshold to pain is much lower. I think the same is true when varicose veins occur in the female pelvis.

The menses are usually prolonged, more painful and more copious at first, later becoming scant as a result of the sclerotic changes in the ovaries. Leucorrhea is present in nearly every case and is greatly aggravated at the menses. Backache is very common and extends well up in the back and sometimes down the legs. Bladder irritability is a frequent complaint and especially at the menses. There is often a change in the menstrual cycle, the interval at first being shortened and then prolonged, the flow becoming more profuse. The women are usually of a nervous, melancholic disposition.

The physical findings are few and one of the striking features of this condition is the severity of the complaint which is out of proportion to the findings on examination. There is no abdominal rigidity, no tenderness over the sacrum, no definite masses are felt in the adnexal regions, there being at best just a sense of bogginess. There is in spite of the negative findings, extreme tenderness on palpating the adnexal regions. The diagnosis must be made by

the process of elimination. The blood and sedimentation test is very valuable in excluding salpingitis or any chronic inflammatory diseases of the pelvis. There is a definite drop in the sedimentation rate in an inflammatory process. Another factor that makes the diagnosis more confusing is the fact that the majority of the cases of varicose veins in the broad ligament are associated with other pelvic pathology.

Another important point is that pain in inflammatory diseases of the pelvis is not relieved by assuming the prone or knee chest position, while in varicosities there is a definite relief.

In my opinion there are very few cases accurately diagnosed before operation. However, this should not discourage us from keeping an open mind and to think of it as a possibility in pelvic pain in women and not allow them to go from one doctor to another begging some one to give them relief.

TREATMENT

The most important treatment is prophylactic. It should begin about the end of the first week after confinement. A visualization of the condition present after delivery will convince one of the benefit to be had from the prone abdominal and knee chest positions. It aids in the pelvic venous drainage and allows the parts to assume the normal relations and the supporting tissues to regain their tone. The posture should be kept for a period of twenty minutes three times daily for six weeks after delivery.

If this was done universally, there would be fewer cases of malposition and varicosities than we now have. It is a simple measure and the cooperation of the patient is gained by an explanation of the benefits to be derived. After varicosities have developed extensively, the ordinary conservative methods offer very little promise of a final recovery. In very moderate cases palliative measures, such as astringent douches, ichthyol and glycerine tampons, and frequent assumption of the knee chest position may add comfort to the patient. In well-developed cases, the only treatment that will give relief is surgical. This is one place that it is necessary to use common sense and surgical judgment. The surgeon must be familiar with the pathology and select the type of operation that will give relief. On the operative table, the broad ligament should be examined before the Trendelenburg position is assumed as the veins will then empty. I am sure I have made this mistake several times and overlooked the condition. The surgical treatment varies from ligation of the engorged veins and ventral suspension of the uterus to radical procedure as panhysterectomy.

In mild cases in young women the proper suspension of the uterus and shortening the round ligament will suffice. In addition, I believe suture shortening of the utero-sacral ligaments will pull the cervix upward and backward and assist in increasing traction on peritoneum, thereby giving additional support to the veins. If the veins are very prominent, they should be doubly ligated and incised, removing a small section of the vein just as you do in a scrotal varicocele. The ovaries are usually congested and many small cysts are present. They should not be removed unless other complications are present. If the patient is very nervous and pain is very severe in character, I believe a pre-sacral sympathectomy should be done. This is a simple procedure and only requires about fifteen minutes longer to do and has certainly proved beneficial in many cases.

In well-advanced cases past forty years of age, associated with pelvic inflammatory disease and fibrous uterus, it is best to do a supravaginal hysterectomy or a complete hysterectomy. In this type of case, it is the only procedure that will offer lasting relief.

CONCLUSIONS

1. The presence of varicose veins in the broad ligament is not recognized as frequently as it should be as a cause of pelvic complaints in women. The recurrence of the old symptoms after some pelvic operations is due to varicosities being overlooked.

2. Deep pelvic pain, persistent, increased before and during menses, relieved by recumbent position, and malposition of uterus present suggest the diagnosis.

3. A pre-operative diagnosis is rare.

4. It is caused most often by malposition of the uterus which favors subinvolution.

5. Properly selected surgery will give relief.

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THE DIAGNOSIS AND TREATMENT OF OBSTRUCTING TUBERCULOUS LESIONS OF THE TRACHEOBRONCHIAL TREE.*

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One of the interesting and satisfactory medical developments of the past half century has been the decrease in the incidence of all forms of tuberculosis. Tuberculous disease of the cervical lymphatic nodes, which at one time was a frequent occurrence, has almost disappeared, and the morbidity and mortality rates in pulmonary tuberculosis have been reduced to a remarkable degree. In view of these facts, the increase in reported cases of unusual types of pulmonary tuberculosis, chiefly of bronchial origin, is interesting.

There is evidence to suggest that cavitation in the lung from tuberculosis is the result of infection of the wall of a small bronchus with formation of stricture and associated localized emphysema of that portion of the lung beyond the narrowed lumen of the bronchus. Although cavities in the lung from tuberculosis are observed with no greater frequency than previously, the relative incidence of obstructing tuberculous lesions of the trachea and larger bronchi has apparently increased. Tuberculous infection of a mediastinal lymphatic node may result in narrowing of a bronchus from extrinsic pressure or ulceration of the node through the bronchial wall. In either case the signs and symptoms encountered are identical with those produced by an ulcerative intrabronchial lesion.

Possibly this increase is more apparent than real, and it may be that the condition merely is recognized more frequently due to the rather widespread employment of bronchoscopy in diagnosis, and to greater appreciation of the fact that stridor is a significant symptom of tracheal or bronchial obstruction. Recognition of tuberculous disease of secondary bronchi is more easily accomplished by bronchoscopic study than by post-mortem examination, and in the past many tuberculous bronchial strictures may have been overlooked at post-mortem.

Tuberculous infection producing partial obstruction of the trachea may occur without demonstrable pulmonary disease, and it is probable that tuberculous ulceration of a bronchus with formation of stricture may be present without associated lesions in the parenchyma of the lung. Therefore, the signs and symptoms of tracheal and bronchial tuberculosis will depend on whether associated disease is present beyond the narrowed area. Differential diagnosis of this type of tuberculosis from a non-tuberculous inflammatory lesion or malignant obstruction is particularly difficult, and I shall attempt to point out some features which may facilitate diagnosis.

Cough is a prominent symptom of tuberculous bronchial or tracheal obstruction, and may be of the dry, irritative type, such as is present with malignant obstruction in the early stages of the disease, or it may be associated with sputum. Unless the disease results from ulceration of a tuberculous node through the wall of a bronchus, expectoration of blood is usually not noted. Severe and repeated hemorrhage may occur in those cases in which there is erosion of the bronchial wall. Daily expectoration of blood-stained mucus, which is frequent in malignant bronchial obstruction, is rarely observed in tuberculous disease. The expectorated secretion may reveal

*Presented at the Southern Tuberculosis Conference and Southern Sanatorium Association meeting, Louisville, Ky., September 19, 1938.

Bacilli of tuberculosis, although sometimes repeated examination of the sputum may be required before their presence is demonstrated.

Fever may be absent, intermittent, or continuous, depending on the presence or absence and degree of tuberculous or secondary infection in the lung distal to the bronchial stricture.

Narrowing of the trachea or a bronchus usually causes stridor, which is an annoying symptom. When the bronchus is completely occluded, stridor disappears. Dyspnea is noted when the obstructing lesion is located in the trachea, but when it is located in a bronchus, dyspnea is less prominent than in cases of obstruction from carcinoma.

Any lesion which produces very much obstruction in the trachea may cause dysphonia. Carcinomatous lesions in the trachea rarely cause hoarseness unless the larynx is directly involved by the growth, when interference with phonation is usually permanent. When tuberculous disease in the trachea is located immediately below the larynx, without direct laryngeal involvement, it may produce intermittent hoarseness. Hoarseness, which is due to paralysis of a vocal cord from injury to a recurrent laryngeal nerve, is frequently seen in malignant disease of the trachea or bronchi and rarely in tuberculosis.

Physical signs depend on the location and type of the lesion and the degree of obstruction. Extensive infiltration of the hilar area demonstrated by roentgenoscopic examination, without physical signs, is usually the result of inflammatory disease, frequently tuberculosis. The combination of a widespread lesion without signs of bronchial obstruction is almost never found in carcinoma of a bronchus. In case of marked bronchial occlusion from tuberculosis, complete atelectasis of a lobe or entire lung may be encountered with absent breath sounds over the area supplied by the diseased bronchus. When occlusion is partial, breath sounds may be normal over the distribution of the bronchus, in marked contrast to partial occlusion from carcinoma, in which case breath sounds are usually distant or absent.

Roentgenoscopic study is of very little value in differentiating tuberculous and malignant tracheal lesions, but a tuberculous lesion in the trachea is usually associated with tuberculous disease in the parenchyma of a lung, whereas a malignant lesion in the trachea is rarely associated with intrapulmonary disease. Hilar lesions of a tuberculous or non-tuberculous inflammatory nature and primary bronchial carcinoma are indistinguishable on roentgenoscopic study. Residue of lipiodal at the base of a lung may simulate any of these lesions.

Bronchoscopy is not advisable in proven, uncomplicated cases of pulmonary tuberculosis, but is frequently indicated in the diagnosis and treatment of pulmonary lesions located in the hilar areas. Superficial areas of ulceration can be seen in the trachea or larger bronchi in many cases of pulmonary tuberculosis, but unless the lumen of the trachea or bronchus is reduced in size by the lesions, their recognition is unimportant.

Tuberculous lesions in the trachea are usually more widespread than those due to malignant infiltration. In the trachea and bronchi tuberculous lesions may appear pale in character with less ulceration and less evidence of secondary infection than are present in many cases of carcinoma, but in the majority of instances the diagnosis cannot be made without microscopic examination of tissue which has been removed from the lesion. Examination of tissue removed from a tuberculous lymphatic node, which is protruding through the wall of a bronchus, rarely confirms the diagnosis of tuberculosis. If an adequate amount of tissue is obtained and no evidence of malignant change is observed, one may conclude that the lesion is likely the result of tuberculous disease.

Treatment of patients with tracheobronchial tuberculosis is unsatisfactory, and permanently favorable results are rarely obtained. Roentgenotherapy seems to benefit a few patients suffering from involvement of the mediastinal lymphatic nodes with associated pressure on, or ulceration into, a bronchus, and temporary relief has been provided for a few patients with tracheal involvement. Instrumental removal of tuberculous tissue from the trachea may enlarge the size of the lumen and ease breathing, but progress of the disease will not be arrested. Local application of various drugs and oils has not proved beneficial. Cauterization or coagulation of tuberculous ulceration has been recommended by other authors, but I have had no experience with this type of treatment in tuberculosis.

Lobectomy or pneumectomy should be considered if a stricture in the bronchus is located sufficiently distal to the bifurcation of the trachea to permit removal of the diseased tissue. Collapse of the lung by any method increases difficulty of drainage by reducing the lumen of the bronchus and usually intensifies toxemia.

Bronchoscopic dilatation of bronchial stricture will sometimes provide an increase in drainage with temporary improvement, but the end-results are not encouraging. If thorough dilatation of a stricture is followed immediately by thoracoplastic collapse of the lung, favorable results may be obtained.

CONCLUSIONS

Although there has been a decrease in all forms of tuberculosis, the incidence of obstructing tuberculous lesions of the trachea and larger bronchi has apparently increased. Stridor is a significant symptom. An infiltrating lesion located at the hilar area without physical signs of bronchial obstruction usually indicates that the process is inflammatory in origin. When there is evidence of bronchial occlusion, the lesion is usually carcinoma. Tuberculous lesions of the trachea are frequently more extensive than those of carcinomatous origin. Bronchoscopy with removal of tissue for microscopic examination is essential in the accurate diagnosis of lesions involving the trachea and larger bronchi.

Treatment of patients with obstructing tuberculous lesions of the tracheobronchial tree is unsatisfactory, but roentgenotherapy may be helpful in a few cases. Dilatation of the bronchial stricture followed by complete thoracoplasty may provide beneficial results. Neither collapse of the lung nor dilatation of the stricture will accomplish satisfactory results unless the two procedures are combined.

Medical Arts Building.

SLEEVE WIRE FIXATION OF FRACTURES—A METHOD OF FIXATION OF FRACTURES IN WHICH THE FRAGMENTS ARE SEPARATED. REPORT OF FORTY-FOUR CASES OF FRACTURES OF THE PROXIMAL END OF THE TIBIA.*

THOMAS WHEELDON, M.D.,
Richmond, Virginia.

INTRODUCTION

Fractures in which the fragments are separated more or less widely have given the writer a good deal of concern. This has been particularly true of fractures of the proximal end of the tibia where one or both of the condyles were broken off with or without the extension of the fracture line into the knee joint and with or without fractures of the condyles from the shaft of the tibia.

The usual methods have been tried by the writer with varying success, but he has not thought that closed reduction with application of plasters, the use of traction, the use of nails and screws or the use of wood worker's clamps have been entirely efficient. In those cases where closed reduction was possible, with the application of plasters, or where the fragments were in such good apposition that little or no reduction was necessary, plasters being applied, there seemed to be a great tendency to the depression of the fractured condyle, from muscle pull, even though this was difficult to explain.

The writer has found at times that although plasters get a general alignment, yet they do not compress separated fragments together. Nails and screws, in fact, do not seem to give as much compression as one would anticipate, and if by any chance they have to be removed, more or less of a surgical procedure is necessitated later. The wood worker's clamp, while affording good compression, is bulky and apt to limit ambulation considerably.

If by the use of any of the above described methods of treatment, results are unsatisfactory, actual deformities of the knee, consisting of bow-leg or knock-knee, a very relaxed, unstable knee, or a knee in which the semilunar cartilages are likely to become displaced, ensue. Resulting disabilities are accompanied frequently by painful knees. The above described methods also require quite a period of immobilization, with resultant stiffness that is likely to involve the knee joint. Incomplete reduction of the fracture may lead to irregularities in the knee joint, which in turn may result in an arthritic condition later.

DESCRIPTION OF METHOD

The method herein described by the writer offers the following advantages:

1.—Firm fixation of the fragments, with very close

From the Research Department of the Wheeldon Orthopedic Foundation.

*Read before the Surgical Section of the Medical Society of Virginia at Danville, Va., October 4-6, 1938.

approximation, which reduces the fracture line in the joint space to a minimum.

2.—Early healing of the fracture, through accurate reduction.

3.—Early mobility of the joint, through ability to keep the fixation apparatus in place and still to remove supporting plaster altogether.

4.—Simple removal of the fixation apparatus, as an office procedure, when healing is complete.

5.—Good cosmetic results with small post-operative scars when apparatus is removed.

Apparatus

The apparatus consist of a Kirschner wire; two sleeves, each of which bears a set screw in its external end, which fit over the wire, and two tighteners with set screws in their external ends to produce compression; a key for locking the set screws; a wrench for adjusting the tighteners.

Introduction of Apparatus

The fracture is reduced either by closed reduction, with or without traction, or by open operation, the latter usually being unnecessary. When the X-ray films show that the fragments are reduced in good relative position, even though they be separated somewhat, the patient should be removed to the operating room where the extremity is surgically prepared. The direction of the compression desired is determined from antero-posterior and lateral X-rays, and the points of entrance and exit of the wire determined. At these points a few drops of novocaine are instilled in the skin. A fine Kirschner wire is then driven through the fragments with the usual apparatus, the writer using a motor for this, as the high speed cuts down any pain which might be produced by the introduction of the wire. A small incision—3/8 of an inch long—is now made at the entrance and the exit of the wire, and these openings are stretched a little with a hæmostat, the tissues between the skin and the bone being opened with the same hæmostat, the periosteum being lifted if possible. A sleeve, long enough to reach from the bone to a point about a quarter of an inch external to the skin, with the set screw exposed externally, is now introduced on each end of the wire, with the internal ends tight against the bone. The set screws are left loose. A tightener is now applied over each sleeve, and the set screws on the ends of the tighteners screwed down securely. With the wrench, the tighteners are manipulated, driving the sleeves together, at the same time compressing the fragments in place. The result is checked by the fluoroscope. When sufficient compression has been obtained, the set screws on the ends of the sleeves are tightened firmly, and the tighteners removed. A sterile dressing is now applied over the whole apparatus and post-operative X-rays taken. If the reduction is satisfactory, the ends of the Kirschner wire are cut off, sterile dressings are applied over the sleeves, sterile sheet-wadding is applied and a plaster is applied,

Fig. 1.

ordinarily from the toes to the groin, although the writer has been reducing the amount of plaster used until, at the present time, he feels it would be possible to simply wrap a crinoline dressing over the tibia including the apparatus, or even to apply simply a sterile dressing, with no further immobilizing apparatus, unless the shaft of the tibia be broken from the condyles. The fracture is X-rayed at regular intervals, and when union seems to be satisfactory, one sleeve is thoroughly cleaned up and washed off with sterilizing solution; the set screw is loosened; the sleeve is removed; the wire is withdrawn from the bone by pulling the sleeve on the opposite side of the leg. A smooth, round hole, about a quarter of an inch in diameter, is left, which usually heals completely in from five to seven days, only a slight dimple being left to mark the entrance and exit of the wire. In the meantime it has been

possible to start physiotherapy and activity for the patient at the end of ten days or two weeks, and by the time the apparatus is removed, good mobility is obtained in the joint.

REPORT OF SERIES

Number of cases—44.

Average length of time sleeve wire was left in the bone—27 days.

Average duration of plaster before physiotherapy was started—23 days.

Average duration of continuation of plaster, after physiotherapy was started—10 days.

Average length of time in which crutches were used, from date of operation—47 days.

Average number of days during which cane was used, following the use of crutches—11 days.

Average length of time before full activity was resumed after operation—121 days.

Fig. 2.

All cases returned to the occupation pursued before the fracture occurred. The method herein described has also been used in the treatment of fractures in the distal end of the femur, where the condyles were separated; in fractures about the ankle joint, where the tibia and fibula were separated; in fractures of the lower end of the humerus; in oblique fractures of the shafts of long bones, and in displacement of tarsal bones.

Figures 1 and 2 illustrate a typical case before and after introduction of the sleeve wire.

SUMMARY

The herein described method of fixation of fractures, where the fragments are separated or are likely to separate, seems to offer the following advantages:

1.—The method is simple.

2.—Fixation is efficient.

3.—Better union can be expected.

4.—Deformity is reduced to a minimum.

5.—Stiffness of joints is reduced by early mobilization.

6.—Removal of the apparatus is simple.

7.—Post-operative scars are very inconspicuous.

8.—The method is applicable to several types of fractures of long bones.

318 West Franklin Street.

DISCUSSION

DR. ROBERT V. FUNSTEN, University: Statistics taken by various fracture committees in large groups of cases have revealed the fact that certain definite principles of treatment must be followed. One must see more than a broken bone. Healing and return of function in ligaments and muscles is equally important. The fragments may, by great force, be replaced so that union may occur with minimum deformity, yet, by exerting such force, irreparable damage may be done to the soft tissues.

It should be the aim of the orthopedic surgeon to perfect the methods of closed reduction, and with the proper training and equipment, he should be able to reduce most fractures by manipulation or traction. He should be able, by adequate convalescent care, to restore function. The method used in accomplishing this purpose might be different with case variations, and with different surgeons.

There is only one hard and fast rule, and that is to obtain as perfect an anatomical reduction and as near complete return of function as possible.

Even under ideal conditions, however, there are certain fractures which can best be treated by internal fixation. One does not look upon the problem lightly. There are unquestionable dangers which can be minimized only by the utmost care, additional equipment, and a thorough knowledge of bone surgery. The average technique of abdominal surgery is not good enough for bone surgery.

Just as there are different ways of accomplishing closed reduction, there are also various ways of accomplishing open reduction. In the hands of their advocates they may be entirely successful.

The results described by Dr. Wheeldon in his paper and demonstrated in the lantern slides speak well for the method he has used. It is particularly adapted to use in the condylar T-fractures of the long bones where the restoration of joint function is so important. It seems to allow for an early mobilization.

The principle is old, having been practiced by Allen,

Carrell, and extensively used by Thompson, but Dr. Wheeldon has, by the use of the set screw and collar, made it especially adaptable in pulling together, and holding together the two fragments of a condyle. Where the fragments are badly comminuted, however, I believe it would be necessary to fall back on the method of closed reduction and manipulation and moulding, or possibly traction.

DR. M. H. TODD, Norfolk: I just want to compliment Dr. Wheeldon on his method. I think it is mechanically exceedingly good. It is very simple, and it certainly looks efficacious.

ACUTE GLOMERULONEPHRITIS—OBSERVATIONS ON CLINICAL COURSE, PROGNOSIS AND TREATMENT.*†

BYRD S. LEAVELL, M.D.,
JULIAN R. BECKWITH, M.D.,
and
J. EDWIN WOOD, JR., M.D.,
University, Virginia.

It is not surprising that an extensive literature should accumulate about a disease whose etiology and cure remain unknown a hundred years after it was first described. Certainly, the contributions on nephritis have been numerous. Neither a comprehensive review of the literature on acute nephritis nor a detailed discussion on any of its many aspects is attempted in this paper. It is the purpose of this paper to present information concerning patients with acute glomerulonephritis seen at the University of Virginia Hospital during the past ten years. From this material we have selected examples to illustrate the various courses that the disease may take, and other examples to emphasize certain features of the disease that have long been recognized but, perhaps, inadequately stressed.

MATERIAL

The material for this study has been obtained from the records of eighty-two patients diagnosed acute glomerulonephritis at the University of Virginia Hospital between the years 1928 and 1938. The records of fifteen other individuals so diagnosed were rejected because of features that cast doubt on the accuracy of the diagnosis. All the cases selected had hematuria, gross or microscopic, and proteinuria; in addition, they had edema or hypertension, or diminished renal function, as measured by elevated blood urea, or a combination of these factors. We have performed special studies from one to ten years after the acute attack on twenty of these patients. The status of sixteen other patients has been determined entirely from the record of subsequent visits to the ward or clinic.

CLINICAL COURSE

The typical picture of acute glomerulonephritis with red cells, casts, and albumin in the urine, edema, transient hypertension, headache, occasionally associated with convulsions and uremia, sometimes terminating fatally in anuria or pneumonia but usually ending in some degree of recovery in the space of a few weeks, is a familiar one and needs no description. It is well known that an attack of nephritis usually follows an infection, generally streptococcal in origin. The relationship of these infections to nephritis must still be considered unsettled in spite of the large amount of work that has been done in this direction.

The preceding event in each patient of this series is presented in Table I. About 25 per cent of the patients in our series could give no history of any sickness or symptoms prior to the onset of the neph-

TABLE I

PRECEDING EVENT IN 82 PATIENTS WITH ACUTE NEPHRITIS

	Number	Per Cent
Sore Throat	21	25.9
Unknown	21	25.9
Upper Resp. Infect.	10	12.3
Scarlet Fever	8	9.8
Skin Infection	5	6.1
Otitis Media	4	4.4
Abscessed Tooth	3	3.7
G. I. Upset	2	2.4
*Miscellaneous	8	9.8
Total	82	100.3

*Including one case each of pneumonia, mastoiditis, pertussis, empyema, and pityriasis rosea.

*From the Department of Internal Medicine, University of Virginia Medical School, University, Virginia.

†Read before the sixty-ninth annual meeting of the Medical Society of Virginia, at Danville, October 4-6, 1938.

ritis. Sore throat was the most common preceding event, being present in 25 per cent. Other infections of the respiratory tract, and scarlet fever, accounted for most of the remainder. The findings from this series are similar to those previously reported by Longcope,[1] Richter,[2] Seegal,[3] and others.

The frequency of the different initial symptoms and signs is shown in Table II. From this table it

TABLE II

INITIAL SYMPTOMS AND SIGNS IN 82 PATIENTS WITH ACUTE NEPHRITIS

	Number	Per Cent
Edema	40	43.4
Malaise	9	9.8
G. I. Symptoms	9	9.8
None	9	9.8
Headache	8	8.7
Hematuria	5	5.4
Convulsions	3	3.3
Oliguria	2	2.1
Dysuria	1	1.1
Backache	1	1.1
Polyuria	1	1.1
Twitching	1	1.1
Arthralgia	1	1.1
Restlessness	1	1.1
Coma	1	1.1
Total	92	100.0

is apparent that any symptom or sign of acute nephritis may be the initial one. That a mild attack of the disease may be asymptomatic is shown by the group of individuals who developed definite evidence of acute nephritis during or following some other disease, but had no symptoms pointing to the renal involvement. This group is very important and illustrates how easily a mild attack of acute nephritis may be present but unrecognized by either the patient or the physician. When one considers that the late prognosis bears little or no relation to the severity of the acute attack, it seems probable that the cardiac and renal disorders of later life in some individuals may have had such an obscure origin.

Edema occurred in 81 per cent and hypertension in 46 per cent of this series at some time during the period of observation. An elevated blood urea was reported in 48 per cent.

The frequency and severity of the cardiac involvement in acute nephritis is probably underestimated. Most writers limit their discussion to mentioning that pulmonary edema may be precipitated by acute cardiac dilatation resulting from hypertension. Fishberg[4] states that a slight degree of cardiac insufficiency is very common, and both he and Goldring[5] have emphasized that the vascular lesions in acute nephritis are not confined to the kidneys. Levy[6] reviewed the literature up to 1930 and presented radiographic evidence of cardiac dilatation in ten patients, three of whom had normal blood pressures. In one of these patients, sixteen years of age, although the heart had returned to normal size after the acute attack, it was again found enlarged three years later when the physical examination, blood pressure, and urine were entirely normal. Levy[6] also noted changes in the T waves of the electrocardiogram in several of these patients. Marcolongo[7] reported cardiac dilatation in every patient investigated radiographically when hypertension was present. Master, Jaffee, and Dack[8] have recently emphasized the effect of acute nephritis on the heart. They studied twenty-four patients between thirteen and forty-five years of age, found hypertension in all, and abnormal electrocardiograms at some stage of the disease in nineteen. Despite their inability to demonstrate any marked gross or microscopic changes in the heart at necropsy, they attributed the cardiac symptoms, dilatation, and electrocardiographic changes to vascular lesions in the heart rather than to dilatation resulting from the hypertension, chiefly because of the prolonged P-R interval found in some patients and because the electrocardiographic changes were of longer duration than the hypertension or dilatation. The instances of cardiac dilatation with normal blood pressures reported by Levy would also seem to favor this interpretation but one must remember that the cardiac dilatation may mask a preexisting hypertension. Convulsive seizures and hydremia may also increase the work of the heart.

In Tables III and IV, and Figures 1 and 2, we have presented some observations on two patients during the acute attack. These observations show that as the renal function improved diuresis occurred, the weight decreased, the blood urea fell, the blood pressure returned to normal, and the heart decreased in size. The decrease in the measured frontal area, 20 per cent in one instance and 30 per cent in the other, indicates that marked dilatation of the heart was present during the early stages. Associated with the changes in the measured frontal area there were definite changes in the amplitude, contour, and direction of the T waves in the electrocardiogram. These

TABLE III

CASE ILLUSTRATING EARLY FAVORABLE CHANGES IN ACUTE NEPHRITIS

Case No. 1 (D. S. No. 142348): A thirteen-year-old white male admitted to the University of Virginia Hospital August 26, 1938. Ten days prior to admission he complained of toothache and noticed that one side of his face was swollen. Three days before admission he noticed swelling of the entire face, feet, and ankles, and shortness of breath on effort.

Date	B. P. (mm. Hg.)	Weight (lbs.)	Orthodiagram Frontal Area (sq. cm.)	Ecg. T Waves (mm.) I	II	III	Blood Urea (mgm./100 cc.)	Urea Clearance % N.	Urine Exam.
8-26-38	160/120	91					50		3+ Albumin Occ. R.B.C.
8-29-38	160/105	93	94.3	+3	+5	+1			2+ Albumin 4-6 R.B.C.
8-31-38	140/105			+2	+2	+0.5	50	35	1+ Albumin Occ. R.B.C.
9- 6-38	110/80	85		+3	+3	+0.5			0 Albumin 0 R.B.C.
9- 8-38	115/85	85	75.5				48	42	0 Albumin 0 R.B.C.
9-20-38	120/70	84	65.5						0 Albumin 0 R.B.C.
9-22-38	115/70	80					34	117	0 Albumin 0 R.B.C.

changes, regardless of their pathogenesis, indicate alteration in the structure and function of the heart and illustrate the strain that this organ undergoes in some cases of acute nephritis. The fact that only one of these patients had dyspnea, while neither of them had pulmonary edema, gallop rhythm, accentuated pulmonic second sound, or evidence of increased venous pressure, suggests that these changes occur more frequently than has been suspected.

PROGNOSIS

It is well known that neither the severity of the acute attack nor any special feature of the attack is of much value in estimating the late prognosis. The information gained from the study of a series of similar patients over a period of years is helpful in estimating the probable subsequent course in a patient, only if the status of that patient and the time elapsed since the acute attack is known. Repeated, careful examinations of the patient after the acute attack has passed are essential in every instance and are much more valuable in predicting the future course of that particular individual than any study of a group of similar cases, no matter how large.

Addis[9] states that healing occurs during the first year in three-quarters of the patients with acute glomerulonephritis, and that there is no instance of healing after the disease has lasted for five years.

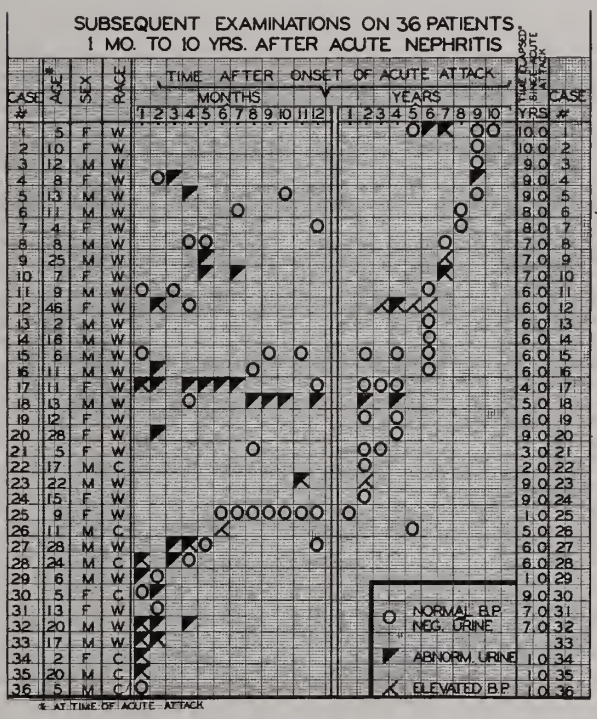
TABLE IV

CASE ILLUSTRATING EARLY FAVORABLE CHANGES IN ACUTE NEPHRITIS

Case No. 2 (H. G., No. 101204): A twenty-one-year-old white male admitted to the University of Virginia Hospital, August 19, 1938. About two weeks prior to admission the patient had a severe sore throat for five or six days. A few days after onset he noticed slight puffiness under both eyes. During the week before admission he noticed a diminution in urinary output, dark urine, and gradually developing swelling of the entire body.

Date	B. P. (mm. Hg.)	Weight (lbs.)	Orthodiagram Frontal Areaa (sq. cm.)	Ecg. T Waves (mm.) I	II	III	Blood Urea (mgm./100 cc.	Urea Clearance % N.	Urine Exam.
8-19	160/100	179					86		4+ Albumin 10-20 R.B.C.
8-29	190/120	171	130.2	+0.5	+2.0	+2.0	76		3+ Albumin Innum. R.B.C.
8-31	190/115	165		+1.0	+2.0	+2.0			4+ Albumin Innum. R.B.C.
9-6	150/95	153		—1.0	+1.5	+1.5			4+ Albumin Innum. R.B.C.
9-12	125/70	133	116.3	+0.5	+2.0	+2.0	48	48	2+ Albumin 0-4 R.B.C.
9-19	110/60	140	105.0	+1.0	+4.0	+3.0			1+ Albumin 1-4 R.B.C.
9-24	130/85	142					54	42	2+ Albumin 0-5 R.B.C.

Goldring[5] has stated that the usual duration of the acute stage is from two to ten weeks. In his opinion, at all ages, 40 per cent go on to complete recovery, 30 per cent become latent, and 25 per cent progress to the chronic stage. About 5 per cent die during the acute attack. Longcope[1] followed twenty-nine adult patients with acute nephritis for periods varying from eight months to seven years. Forty-one per cent he classified as "well", 14 per cent as "latent", and 45 per cent as "chronic". Van Slyke and his group[10] published a careful study on twenty-three patients with acute nephritis. Five were classified as "healed", eleven as "latent", five as "acute chronic", and three others passed directly from the acute to

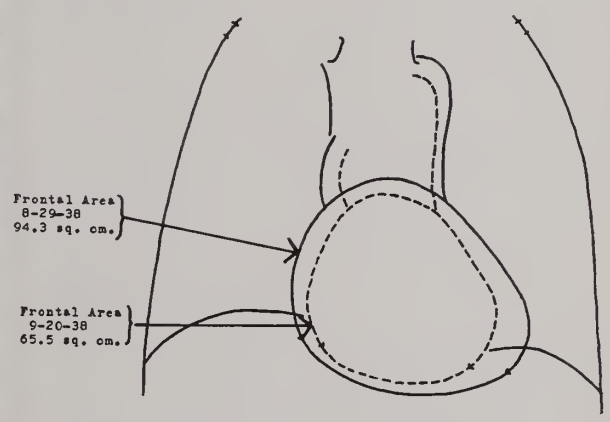


the "terminal stage". However, four of the patients classified as latent were followed for less than six months and six from one to two years. They concluded that the best indications of developing chronicity were a lowering of the serum protein during the acute attack and the failure of renal function, as measured by the urea clearance test, to improve within four months after the acute attack. Fishberg[4] and Newberg[11] state that the incidence of chronicity is higher in older individuals and is lower following scarlet fever than it is after other infections. Richter[2] has reported a detailed analysis of 100 patients over twelve years of age seen at the Peter Bent Brigham Hospital. Five per cent died from nephritis during the acute attack. Of the seventy-seven patients who were observed over a period of one to nineteen years, averaging 8.7 years, sixty-two were apparently cured, and fifteen, about 20 per cent, were chronic. In all except four of these sixty-two classified as cured the urine became albumin-free during the first year, while in only two of the fifteen developing chronic nephritis did it become negative during this time. In other words, if albuminuria was present after the first year the chances of the patient having the chronic disease were about 4:1.

The late results and the time of each examination of the patients in this series is shown in Table V. Of the twenty-seven patients observed for more than one year, two had albuminuria, three had hypertension, and one had both hypertension and albuminuria. Thus seven, or about 25 per cent, of this series have some persisting abnormality from two to nine years after the acute attack.

FIG. I

CASE # 1 (D.S. #142348)



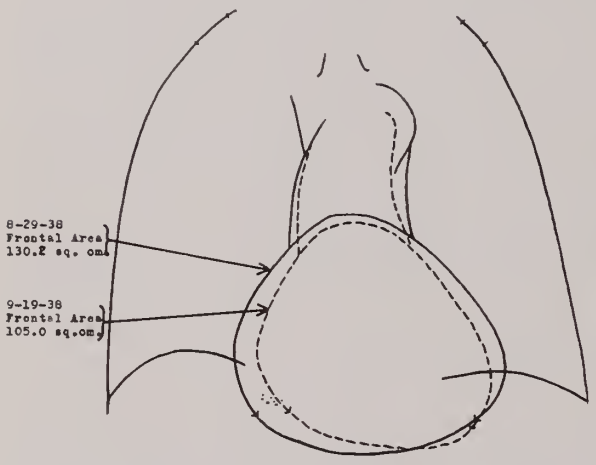
The importance of the course during the first year as an index to the subsequent course of the disease is evident in this table. Of the seven patients found to have abnormal urine or blood pressure at the end of several years, only one was considered normal at the end of six months. Of the fourteen who were known to be negative near the end of the first year, only one has later shown an abnormal urine and blood pressure.

Case No. 1 is very instructive. This patient recovered from an attack of acute nephritis at five years of age and examination was entirely negative five years later; during the sixth year she developed albuminuria and in the seventh year, when she was twelve years of age, she passed through what might easily have been mistaken for an attack of acute

glomerulonephritis, having hematuria, albuminuria, and hypertension, all of which disappeared in a few months. Her blood pressure and urine have been entirely normal during the past three years since her second episode. This patient illustrates the difficulty

FIG. II

CASE No. 2 (H.C.#101204)



that sometimes arises in the differential diagnosis between acute glomerulonephritis and an exacerbation of a latent or chronic nephritis. In some instances this question is impossible to decide unless the patient has been observed for several years preceding and following the attack.

Case No. 33 was an example of the result that Addis,[9] Van Slyke,[10] and others consider as passing directly from the acute stage into the terminal stage. This patient, a seventeen-year-old white boy, developed acute nephritis following an attack of scarlet fever, the renal lesion showed no tendency to heal, he gradually failed and died at home about four months after the onset of the acute nephritis.

We think Case No. 2 and Case No. 24 best illustrate the healing that may occur in acute nephritis, because both of these patients have passed through entirely normal pregnancies since the attack of acute nephritis.

Because of the cardiac dilatation that sometimes occurs during the acute attack and the previously mentioned work suggesting that the heart may be directly damaged at this time, we have studied the orthodiagrams and electrocardiograms of twenty patients from one to nine years afterwards. The average time elapsed since the acute attack was six years. The results of these examinations and the blood pressures and urinary findings are shown in Table VI.

TABLE VI

OBSERVATIONS OF TWENTY PATIENTS FROM ONE TO NINE YEARS AFTER AN ATTACK OF ACUTE NEPHRITIS

Case No.	Age (At Time of Initial Attack)	Sex	Race	Orthodiagram Frontal Area (sq. cm.) *Predicted	Measured	C/T Ratio (%)	Ecg. Leads I, II, III	B. P. (mm. Hg.)	Urine Exam. (Casual Specimen)	Time Elapsed Since Acute Attack (Yrs.)	Vascular Abnormalities	Case No.
1	8	F	W	92.0	77.9	+8.0	Normal	115/80	Negative	9.0	0	1
2	13	M	W	130.0	108.6	+0.5	Normal	130/85	Negative	9.0	0	2
3	10	F	W	93.0	68.6	42.2	Normal	120/80		9.0	0	3
4	12	M	W	117.0	108.1	+0.5	Normal	130/80	Negative	9.0	0	4
5	4	F	W	79.0	73.7	+0.9	Normal	110/75	Negative	8.5	0	5
6	11	M	W	105.0	102.8	50.4	Normal	104/74	Negative	8.0	0	6
7	8	M	W	107.0	81.4	+5.0	Normal	130/80	Negative	7.5	0	7
8	25	M	W	119.0	115.6	+6.0	Normal	150/92 146/94	Negative	7.0	+	8
9	11	F	W	98.0	82.5	+1.3	Normal	140/60	Negative	7.0	0	9
10	7	F	W	92.0	93.8	+9.7	Normal	150/105 142/102	Sl. Tr. Albumin	7.0	+	10
11	9	M	W	101.0	103.2	+4.6	Normal	130/90	Negative	6.0	0	11
12	2	M	W	63.0	55.7	+6.1	Normal	80/60	Negative	6.0	0	12
13	+6	F	W	108.0	99.0	56.9	Normal	204/124	Negative	6.0	+	13
14	11	M	W	109.0	80.8	34.4	Normal	118/78	Negative	5.5	0	14
15	6	M	W	72.6	64.4	+9.4	Normal	96/76	Negative	5.5	0	15
16	11	M	C	91.0	105.5	+8.8	Normal	130/80 125/82	Negative	5.0	+	16
17	5	F	W	55.0	60.8	56.6	Normal	120/75	Negative	3.0	0	17
18	17	M	C	106.0	108.5	+7.8	Normal	90/60	Negative	2.0	0	18
19	24	M	C	101.0	98.1	+5.0	Normal	134/82 130/82	Negative	1.3	0	19
20	9	F	W	66.0	59.2	54.7	Normal	95/60	Negative	1.0	0	20

*The predicted frontal areas are obtained from the height and weight nomogram compiled by Kurtz. (Chester M. Kurtz: "Orthodiascopy". The Macmillan Company, New York, 1937.)

The electrocardiogram was considered to be within normal limits in every instance. Abnormal blood pressures were found in three instances, once associated with albuminuria, but in each instance the orthodiagraphic study revealed the size of the heart to be within normal limits. Perhaps the most interesting finding in this study is Case No. 16. Five years after an attack of acute nephritis this sixteen-year-old colored boy was found to have a definitely enlarged heart with a frontal area of + 16 per cent with no symptoms, a normal blood pressure, and a negative urine with a specific gravity of 1.022 on a casual specimen. He gave no history suggesting any past rheumatic infection and there was no evidence of a valvular lession on physical examination or on fluoroscopy. It is possible that this cardiac enlargement is the only demonstrable evidence of an unhealed renal lesion and only continued study will give the final answer. However, it must be borne in mind that this may represent residual cardiac damage from a healed attack of acute nephritis and that this may explain some of the puzzling instances of cardiac enlargement without evidence of a congenital defect, rheumatic fever, hypertension, or lues. Obviously, a definite conclusion on this point cannot be drawn at present.

TREATMENT

As is true of many other diseases in medicine, the number of different therapeutic methods and régimes that have been advanced in the treatment of acute nephritis is adequate evidence that an entirely satisfactory one is not yet available. The fact that the mortality rate during the acute attack is around 5 to 7 per cent in practically all the reported series suggests that the therapeutic measures in present use do not alter the outcome of the acute attack with the possible exception of the emergency measures used in the treatment of pulmonary edema and convulsions. There are but few studies that give any information regarding the possible effect of early treatment on the incidence of the late sequelae.

Probably the most important general features in the treatment of acute nephritis are the duration of bed rest, the amount of fluids, the diet, the removal of foci.

The actual length of time the patient should be kept in bed is difficult to decide, especially when economic and personality factors play an important part. Any disease that leaves over 20 per cent of its victims with some residual damage must be considered a serious disease. The whole future life of the individual must be considered and not the few weeks or months during and after the acute attack. We must remember that we are dealing with a disease that sometimes heals so completely that years later no evidence of it can be found at autopsy, and that in some instances this healing takes place only after several years. Nevertheless, a good proportion of these patients, especially adults, develop late changes for which treatment has little to offer. It seems apparent that what efforts we make to alter the course of the disease must be made early. Perhaps the future interest of the patient would best be served by adopting some of the philosophy of the treatment of rheumatic fever and insisting on a "radical" rest régime during the acute attack, keeping the patient inactive until all signs of activity, including the urine examination, have entirely cleared up or definitely become chronic. The fact that some patients have negative urine while in bed and develop both red blood cells and albumin after resuming activity indicates that rest actually does have a sparing effect on the kidney. The knowledge that a good many of these patients apparently recover completely after a short convalescence and that others die without ever leaving their beds is not a valid reason against a longer period of inactivity. The group with residual damage is strong evidence of the failure of our treatment and it is toward reducing the size of this group that our efforts should be directed.

The amount of fluid that should be given these patients is a matter about which there has been much discussion and little agreement. It is a matter in which one cannot follow a fixed routine. As Fishberg[4] points out, the glomerular loops are largely blocked and it is difficult to see how a large fluid intake can cause diuresis through such glomeruli. Siebeck[12] has shown that the ingestion of 500 to 1,000 cc. of water results in hydremia lasting for more than seven hours but rarely increases urinary output when this is severely reduced. Repeated experiments of this nature caused an increase of the edema. In normal individuals the same amount of fluid caused a transient hydremia and prompt diuresis occurred. From these considerations, then, it would seem logical to give liquid about equal in amount to the urinary output during the period when the output is diminished, as long as the specific gravity of the urine is high. It is probably ad-

visable to give an additional 800 cc. for insensible water loss. However, if the specific gravity of the urine is low, urinary volume is reduced, and a retention uremia seems to be developing, it is justifiable to attempt to increase the output by giving up to 2,000 cc. of fluid a day to an adult, even when edema is present. In view of the evidence of cardiac involvement previously mentioned one must consider the possible advantages to be gained from a large amount of fluid and its possible undesirable effects, especially if dyspnea is present, for the danger of pulmonary edema is a real one.

A discussion of the diet the patient is to have is of no value unless one considers what the patient is able to take, for many of these ill patients are unwilling and unable to take any food. Farr and Smadel[13] have studied the effect of diet on the course of nephrotoxic nephritis in rats and showed conclusively that after the first month the course of this experimental nephritis was markedly and adversely affected by diets containing 18 per cent and 40 per cent protein as compared to a diet containing only 5 per cent protein. However, it must be remembered that hematuria is not a feature of this nephrotoxic nephritis, that the diets of rats and man are hard to compare, and that Keutmann and McCann[14] could demonstrate no adverse effects in human beings with nephritis when they fed the calculated maintenance amount of protein. The effect of diet on the more obscure late results is difficult to determine. Provided the preceding illness has not been an exhausting one, caloric intake is not of prime importance for a week or ten days. In view of the fact that protein is not essential for a short time and the end products of its metabolism are excreted by the kidney it would seem advisable, and certainly not harmful, to eliminate this from the diet for a short time. The diet during the early part of the attack should consist almost entirely of fat and carbohydrate for the metabolic products of these substances put little strain on the kidney and they also spare the body protein to a great extent. Fishberg[4] recommends that the diet be poor in salt, not only because salt may increase the edema but also because it must be eliminated through the kidneys. As the patient improves the diet should be gradually increased and the calculated protein requirements should be met when the evidence of nitrogen retention disappears. No useful purpose is accomplished by long restriction of protein simply because the urine is not entirely clear, and edema due to hypoproteinemia may arise in a surprisingly short period of time.

The discussion of the treatment of foci of infection is intimately associated with theories regarding the etiology of acute nephritis, an aspect of the subject which we do not wish to discuss. The main questions are how radical one should be in attacking tonsils, teeth, and sinuses, and at what time this should be done. Longcope[1] studied twenty-nine patients for periods varying from eight months to seven years with special reference to cultures obtained from the throat and sinuses. Eleven of the thirteen "progressive" cases had continuous and obvious infection of the paranasal sinuses or throat from which cultures were consistently or frequently positive for hemolytic streptococci. Only four of the sixteen classified as "well" and "latent" had similar findings. Winkenwerder, McLeod, and Baker[15] studied the relationship of hemolytic streptococci to nephritis in seventy-eight patients from one to eight years after the acute attack. In their series streptococcic infections rarely caused relapses in the patients that recovered, whereas persisting chronic infections were characteristic of the "progressive" stage, even in the beginning. It is well known that acute nephritis may follow a sore throat that occurs years after satisfactory tonsillectomy has been performed. Such was the case in five patients in our series. In spite of the fact that the removal and treatment of foci of infection may not result in improvement, and the importance of focal infection is probably exaggerated in a good many diseases, the treatment of definitely infected foci should be considered part of the proper treatment of acute nephritis.

The danger of causing exacerbation of the disease, major or minor, by removing foci should be a well recognized possibility. Decision as to the optimum time to treat the focus is difficult, but there is general agreement that it should not be done during the acute attack. If we wait until all signs of activity have disappeared we may only treat the patients that do not need this aspect of the treatment. The tonsils were considered a focus in eleven of our patients who had been followed for one to ten years. In two of these tonsillectomy was performed one month after onset, the urine being clear at that time, and in one of these there was an immediate mild exacerbation of the nephritis. In nine others tonsillectomy was performed from three to six months after onset and although four had persisting urine abnor-

malities at the time of operation, none had any exacerbation of the nephritis. We believe that removal of foci should be delayed until about the fourth month; if the signs of activity have disappeared, there is practically no danger attached to the procedure. If definite improvement in renal function has not occurred by that time it is likely that the process will not heal completely and nothing will be gained by further delay. If steady but slow improvement is occurring at the end of four months it is probably advisable to delay longer, especially if, as is true in many instances, the importance of the focus is questionable.

The hypertensive encephalopathy of acute nephritis, seen most often in children, may be temporarily relieved by the intramuscular injection of magnesium sulphate (0.2 to 0.4 cc. of 25 per cent solution per kilo body weight).[16] This method for the relief of convulsions associated with increasing edema, hypertension, headache and drowsiness, has impressed many of our pediatricians favorably. No satisfactory explanation for the action of magnesium sulphate has been offered. One cannot help but wonder if the condition leading to the apparent necessity for magnesium sulphate may not be avoided by the judicious limitation of fluids early in the course of the disease.

SUMMARY

We have reviewed the records of eighty-two patients with acute glomerulonephritis admitted to the University of Virginia Hospital during the past ten years. Special studies have been performed on twenty of these patients from one to ten years after the acute attack. These studies demonstrate the advisability of prolonged observation in every case of acute glomerulonephritis. We believe the importance of absolute rest during the period of active disturbance in the kidney has been underestimated.

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DISCUSSION

DR. J. EDWIN WOOD, JR., University: Adequate rest in acute glomerulonephritis has been underemphasized. The value of a suitable rest régime during the active periods of tuberculosis and rheumatic fever has been well established. It would seem to be equally true that during the activity of acute glomerulonephritis added work for the kidney occasioned by over activity also produces damage that might not occur otherwise. This conception is not well known and often cases of acute glomerulonephritis are allowed to be up and around when there are flagrant signs of inflammation in the kidney.

As regards the question of sulfanilamide there is, of course, no direct evidence. If we accept the present theory of the relation of the hemolytic streptococcus to acute nephritis, then it would seem that the administration of sulfanilamide at the time of nephritis would be too late. Theoretically, if sulfanilamide could be given two weeks

before the onset of the disease during the streptococcus event, then possibly some cases of acute nephritis could be avoided. However, as we have no way of knowing just which case with a streptococcus infection may develop nephritis this would be an impractical method of prevention.

There can be no iron bound rule for the question of transfusion. I have been inclined to avoid this procedure during the acute inflammation of the kidney; as a matter of fact, anemia is seldom a disturbing event in acute nephritis but may become so later in the chronic stages.

I think Dr. Leavell brought out quite clearly the advisability of prolonged and careful follow-up of any case acute nephritis, not only from the standpoint of determining the question of activity but also the question of complicating cardiovascular disease.

DR. JAMES B. STONE, Richmond: I want to say just a word on the use of fluids. In the brief time the lantern slides were shown I could not correlate the age of the patients with the other material presented. Aldrich, in Chicago, has done more work and reported more data from his observations on nephritis in children than anyone else in this country. He has shown the great value of forcing fluids in children with nephritis. During the last ten or twelve years he has studied the results obtained in the Children's Memorial Hospital in Chicago according to the treatment used. In the early days they tried small amounts of fluids, dehydration, and hot packs. The mortality was almost one hundred per cent. A few years later they tried a moderate amount of fluids. During the last few years they have forced large amounts of fluid, and the mortality has dropped tremendously.

Aldrich maintains, and apparently has evidence to support his views, that the same thing which causes the kidney damage also affects the cerebral tissue. It is the absorbed toxin which affects both structures, and magnesium sulphate, by its dehydrating effect on the colloids of the brain, appears to have some effect in diminishing the cerebral edema that results from this toxemia. So the use of magnesium sulphate and forcing fluids, as a means of diluting the toxins, are the two points which he emphasizes. During the last year or two I have treated my cases along this line and have been much impressed with the good results obtained.

DR. WM. B. MCILWAINE, Petersburg: About ten years ago the pendulum swung from forcing fluids to not forcing fluids. Of course, most doctors swing with the pendulum, and at that time I stopped using my old remedy which I had used for some years previous, which was cream of tartar and lemonade. I have come to the conclusion that the forcing of fruit juices is of definite value in the treatment of nephritis—not the forcing of water by itself; and I am wondering whether the good results gotten from the forcing of fruit juices may be from the action of vitamin C. While I realized that the forcing of water did not give as good results as the forcing of fruit juices, yet I did not know the reason until recently, when it has been brought out that vitamin C has a definite diuretic action. I want to ask the doctors whether it is possible for the forcing of fruit juices to be of value largely on account of the vitamin C content rather than because of the fluid in the orange-juice mixture which we give.

I should like them to bring out one point in closing the discussion, and that is whether acute glomerulonephritis is brought on by any one organism. I have followed cases in the acute streptococcus group and have wondered if I were justified in using sulfanilamide in the treatment of acute glomerulonephritis.

I should appreciate it if they would take up those two points in the closing discussion.

DR. ————*: I have enjoyed the presentation very much, and I should like to hear a little more discussion in regard to the protein intake. It has been in the literature recently and for the last one or two years that in a case of nephritis it is an open question whether to restrict the protein, or whether to give a moderate amount, or give a high amount. Observers such as Mosenthal and others say that if you have a case which is spilling—say a cloud of albumin daily, then the protein intake is cut out or cut down away below that person's requirement, and there is this thought in mind, when the serum albumin and the serum proteins diminish in amount, if they go below the critical level for edema, the kidney is not going to be able to handle that fluid, and that fluid is going out into the tissues. With this point in mind, some men recommend that the protein intake be cut to an amount of forty or fifty grams a day; that will be sufficient to make up that albumin loss, but will not be sufficient to overload the kidney or to cause a great deal of nitrogen retention. I fully agree that the amount of protein intake is an individual problem in each one of these cases.

DR. ————*: Following these cases radiologically, I really picked up this discovery without any reference to the literature—how quickly an acute nephritis in a child will cause a cardiac enlargement.

Another point I should like to ask about is whether the use of high sugar concentrates would be indicated. And my third question is about the use of blood transfusions, both as a means of replacing protein and also as a source of easily assimilable sugar, and then to replace blood.

It looks to me as if in the method of treatment (and I do not mean to be cynical or funny) it is a question of whether you hit the bull's eye and write a circle around it or whether you draw a circle and then hit the bull's eye. There is really no treatment for nephritis, whether you give them salt or do not give them salt.

On these three points I should like to have enlightenment,—whether you give them salt; the question of giving digitalis in the early stages; and transfusion.

DR. LEAVELL, closing the discussion: In answer to the first question about the age of the patients who received magnesium sulphate, about half of them were admitted to the Pediatric Service because they were less than twelve years of age when the first attack occurred. It is the practice of the Pediatric Service at the University of Virginia Hospital to give magnesium sulphate and large

*Name not known.

amounts of fluid to all patients from the time of admission, and the pediatricians are very enthusiastic about the results of the treatment. This series is too small to draw any conclusions regarding the value of magnesium sulphate, but the results often seem better in children than in adults.

Our series is too small for one to draw any conclusions about the relation of age to prognosis. Seven of these patients in whom there were persisting abnormalities were under twelve years of age when they had their first attacks.

I think the point about forcing fruit juices is an excellent one. Of course, vitamin C acts on the capillaries, which is the point of most damage in acute nephritis; therefore, it seems logical and good practice to give fruit juices. Both the carbohydrate and vitamin C are helpful.

In deciding the amount of protein the patient should have, the work which Smadel and Farr have done on nephrotoxic nephritis in rats is interesting. They produced a nephritis in rats which was almost identical with the nephritis that is found in human beings, except that hematuria was not present. In feeding the rats different diets, they found the course of the disease the same for about a month, but after that time the rats on a higher protein diet showed evidence of greater renal damage than those on a low protein diet. The fact that the changes did not develop until after the rats had been on the diet for a month may be of some significance.

Dr. McCann studied the effect of protein on patients with renal lesions, giving them varying amounts of protein in the diet. He could demonstrate no adverse effect from giving them the maintenance amount of protein plus the amount excreted in the urine each day. These patients were studied for only about six months, so I suppose the question of protein has not been finally answered. I think we are on pretty safe ground if we eliminate it during the early part of the disease.

The question of serum protein level is an important one. Van Slyke and his group thought that two things are very important in estimating the prognosis: Lowering of the serum protein during the acute attack, and the failure of renal function to improve within four months after the acute attack. Our experience has been the same. Whether the serum proteins were low because of approaching chronicity, or whether low protein favored chronicity I do not know, but I suspect the protein changes are the result of the renal changes.

The amount of salt the diet should contain is discussed in the paper.

PARTIAL OCCLUSION OF SUPERIOR MESENTERIC ARTERY.*

JAMES A. GANNON, M.D., F.A.C.S.,
Washington, D. C.

An embolus is a foreign body or some undissolved material that is carried by the blood and impacted in any portion of the vascular system. The source of an embolism includes such lesions as septic processes, thrombophlebitis, vegetation of the cardiac valves, and arteriosclerosis.

"The superior mesenteric artery supplies the entire small intestine, the cecum, and ascending and transverse colon. It arises from the aorta just below the cæliac axis. It is covered at the origin by the splenic vein and by the pancreas, and passes between the pancreas and the transverse portion of the duodenum, crossing the front of this portion of the intestine, and descends between the layers of the mesentery to the right fossa" (Gray's Anatomy). The branch of the artery which supplies the colon is given off very early so that it is possible for an occlusion of the vessel to occur below where it is given off and affect only the small intestine. The occurrence of a embolus in the superior mesenteric artery is followed quickly by paralysis of the intestine, and, if the occlusion is complete, gangrene and peritonitis soon follows. Frequently an occlusion of one of the branches of the vessel is followed by a localized damage, which can be treated by resection of the part of the intestine affected. When the entire intestine is paralyzed, no operation can be done. Many doctors believe that obstruction of the mesenteric artery high enough to affect the entire small intestine is always fatal, and the purpose of this report is to again emphasize the old saying that "while there is life there is hope," and to pay my compliments to the Wangansteen tube.

One morning in August, 1938, a tobacco expert connected with the Government left his home in Virginia, and came to Washington on business. He stopped at the Burlington Hotel. He went to bed at his usual time. Very early in the morning he was awakened by abdominal pain and vomiting. This continued until daylight when he summoned medical help. He was sent to Emergency Hospital for observation. He was markedly worse by noon, and a

*Read before the Virginia, Maryland, and District of Columbia Medical Society, November 6, 1938.

leucocyte count showed the white cells to be 20,000. I saw him in consultation with his physician at this time. He was about forty years of age, and was lying on his back in bed in evident pain. His pulse was 120 and his temperature was 102. The abdomen was distended and tympanitic. There was no localized tenderness. He appeared to be quite ill. His history showed that he had suffered from indigestion and pain in the right lower quadrant for five years, and that he had been studied in several of the clinics of the South, and told that he had a chronic appendicitis. No one had suggested the removal of the appendix. The patient appeared to be suffering from acute appendicitis with peritonitis, but before operation a flat X-ray picture was made to rule out kidney stone and mechanical intestinal obstruction. No kidney stone was found, and the X-ray report indicated there was difficulty in the region of the cecum. The patient was sent to the operating room, a right para-rectus incision was made, and an adherent and inflamed appendix was removed. The cecum was normal in color and was not distended. Several omental adhesions were attached to the cecum and these were divided. The entire small intestine was distended and red in color. The distention stopped abruptly as the ileum entered the cecum. The fingers invaginated the ileac wall and pushed it through the ileocecal valve without restriction or difficulty. There were no intestinal adhesions and palpation of the other organs of the abdomen did not reveal abnormality. The veins of the mesentery were distended with blood which was not coagulated. The intestinal area involved was so great that the abdomen was closed without attempting to do anything further, and the patient was returned to bed. A Wangansteen tube was introduced and blood transfusions and intravenous glucose in salt solution were commenced. The distention was relieved somewhat, but the condition of the patient remained much the same when I called on him morning and evening for seven days. On the morning of the eighth day the nurse reported a bowel movement after an enema. This was repeated and later in the day the Wangansteen tube was clamped for a few hours and fluids were given by mouth. The tube was removed on the following day and soft diet commenced. There was no vomiting and no return of the other symptoms. The bowels continued to move each day and the food intake was increased. After another week the patient returned to his home with his wound well healed, and his alimentary physiology in working order. This was evidently a partial occlusion of the mesenteric artery of one week's duration. The inflamed appendix and the battle scarred cecum furnished the probable origin for the embolus. There were no heart murmurs present. The result was fortuitous, and the author does not claim any particular credit for the outcome of the case.

The Wangansteen tube is a valuable instrument and will save many lives. By syphoning the contents of the stomach and the regurgitation of the duodenum it prevents vomiting (which is exhausting) and allows gas and toxic materials to escape from the upper alimentary canal. It is useful in intestinal obstruction, and by reducing distention and allowing the patient to be properly prepared, it allows operation for mechanical obstruction to be performed in one stage.

This month's* *Surgery* carries an article which describes a case of perforated gastric ulcer in which the tube was used and by keeping the stomach empty the perforation healed without necessitating operation. Draining the upper alimentary tract depletes the body of sodium chloride and this should be made up for by saline intravenous injection.

1915 Biltmore Street, Northwest.

*November, 1938.

Correspondence

State Medicine Alias Social Security.

TO THE EDITOR:

This is a subject that is uppermost in the minds of every American doctor in the medical profession. For the first time in the history of our country the Federal government is making a supreme effort to project their political tentacles into one of the greatest of all professions—the medical profession. By this act they hope to subsidize the profession and bring them under the control of the Federal government operated by brain trusters and beaurocrats who will be totally ignorant of the need and requirements of the health and the sick of our people. When we look back over the past six years and see how our government has tried to regiment every occupation and business in our land, we are not surprised at the steps they are now taking to regiment the medi-

cal profession. The attempt on the part of the government to socialize medicine is purely a political set-up, designed for the purpose of controlling the profession and this will be done in a propagandic disguise of a great humanitarian act for aiding the poor and under-privileged class.

The patriotic and intelligent people of our country are getting wise to the propagandism that has been carried on during the past six years, which has been done for the sole purpose of regimenting our people into the channels of government control, and today through this process the government has a national debt of nearly fifty billions of dollars and is still piling up deficits. All the great nations of past history have gone down under debts and taxation. Please notice that Congress was recently asked for eight hundred and fifty million dollars to regiment the doctors and hospitals. Such colossal sums will eventually bankrupt any nation. We are now headed that way: this amount when added to the enormous grants to the Federal government already made, will not only regiment the medical profession, but every other profession and occupation, and will perpetuate the present regime in office indefinitely. When this is accomplished our country will be ripe for a dictator. If the patriotic citizens of our country do not wake up we will soon be in the same condition that Russia was just after the World War—then it will be too late.

The Dies Committee unearthed a host of termites. Now working from within—such as avowed atheist, communist, and a host of other isms that have gained entrance into our country by unlawful means—these are allowed to operate without any hindrance from our Federal government. If such conditions are allowed to continue, the foundation of our Constitutional government will soon be undermined.

We hear a great deal today about building up great armaments for fear that we will be attacked by some outside enemy: the American people should be more concerned about an attack by enemies within our own country, and this is done with the full knowledge and consent of some of our government officials.

In order that we might get a proper prospectus of socialized medicine, let us look at England and Germany, both of which countries have had socialized medicine for one or two decades. Prior to socialization of medicine in these two countries, both nations had a splendid health record with the average life period about equal to any other country. Since the adoption by these countries of socialized medicine, England is standing still while Germany's health record is falling. Both of these countries stood high in preventive medicine and Germany led the world in chemistry, but today both countries have declined, while America has forged ahead in preventive medicine, chemistry and other aids and today she leads the world in these sciences and arts with the average life lengthened longer than any other country, except New Zealand. One of the great problems for the American people to decide is: Shall we have government control of the medical profession which will be under the supervision of politically controlled beaurocrats, the medical profession to lose its independence and be governed by a politically controlled politician who has only to answer to his superiors who are totally ignorant of the real needs and requirements of the health and sickness of our people; or shall we continue as we are today with a profession that is going forward from a scientific standpoint, leading the world in medical science and lengthening the average life of our people to a higher standard than any other nation; or shall the American people lose that sympathetic contact with their family physician and exchange it for regimented paid government doctors who only answer to their superiors, and will not be any thing more than ward healers for their dear government? If this thing is consummated, we will find the mechanized dole service of the paid doctor eventually resolving itself into a highly propagandized service with wonderful reports made out especially to his superiors. When this happens, the now competent doctor who keeps himself abreast of the profession will be supplanted by the paid political doctor who has first to be loyal to his party, and second, if at all, to his patient. Then the average life of the American people will decline, preventive medicine will go out, and the American people will grow weaker as a nation.

The final analysis of this problem, together with numerous other serious questions, stands before the American people today and will very soon have to be settled. Will they sit complacently by and allow themselves to be regimented by a spurious and false propaganda, or will the American people stand for the right in this and other great national problems, and not allow that glorious emblem—the Stars and Stripes—to be pulled down from over our National Capitol and the capitols of forty-eight states, to be

replaced by the yellow rag of Communism or the red rag of Fascism? In the language of that wonderful patriot—"Forbid it Almighty God, forbid it", and may that National emblem that has always stood for liberty and constitutional government continue to wave over the greatest nation on earth—the land of the free and the home of the brave.

SIDNEY J. TABOR, M.D.

Portsmouth, Virginia.
March 6, 1939.

Lawyer-Doctor, Attention!

TO THE EDITOR:

I am being impressed with the number of professional men who hold degrees as Doctors of Medicine and who also have received degrees from accredited law schools and are admitted to practice before the several courts of their states and country.

An effort is being made to secure and list all persons who possess the rights to practice medicine and law and who hold unrevoked licenses to engage in these two professional activities. The information is not obtainable from medical or law directories.

An appeal is therefore being made that persons holding the rights to practice medicine and law send their name, address, and data pertaining to their education in medicine and law to the undersigned. It will be appreciated also if a statement is included as to whether full time is devoted either to law or to medicine or whether the person engages in the practices of both professions.

FREDERICK C. WARNSHUIS, M.D., *President,*
American Medico-Legal Association,
137 Newbury Street, Boston.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for February, 1939, compared with the same month in 1938, follows:

	1939	*1938*
Typhoid and paratyphoid fever	6	10
Diphtheria	54	76
Scarlet fever	169	156
Measles	570	2,045
Meningitis	3	15
Poliomyelitis	3	0
Rocky Mountain spotted fever	0	0
Typhus fever	1	0
Undulant fever	0	5
Tularemia	1	2

CRIPPLED CHILDREN'S ACTIVITIES.

On June 30, 1938, there were 5,383 crippled children on the register in the central office of the State Health Department. It is interesting to note that the majority of cases of crippling among these children are the result of diseases that are wholly or partially preventable. In order of importance these are infantile paralysis, tuberculosis of the bones or joints, rickets, and injuries from avoidable accidents. The entire resources of the Department are utilized in a continuous fight against these and other preventable conditions. Intensive work is effectively carried on in counties which have full-time health departments. Counties without health departments are served by a small corps of nurses in the Crippled Children's Bureau.

Forty-five permanent diagnostic clinics are operated in the State by qualified orthopedic surgeons. During the period July 1, 1937, to June 30, 1938, 3,884 patients were examined at the clinics, representing an increase of 1,217 over the number examined in the previous year. The clinic service is statewide in scope; the 242 clinics conducted by the Department at forty-five regular clinic centers provide diagnostic facilities for all rural Virginia. The services of a physical therapist have been secured to assist in setting up treatment centers in conjunction with the clinics. She will be employed wherever the need is greatest, giving particular attention to the care and treatment of recent cases of infantile paralysis.

Hospitalization for indigent children under the age of sixteen is provided through a contract with the Hospital Division of the Medical College of Virginia and the University of Virginia Hospital. One hundred and fifty beds for white and colored children are available for orthopedic and plastic-surgery cases. A total of 43,638 days' hospital care was provided during the year.

A substantial sum is set aside in the budget of the Department for the purchase of orthopedic appliances, braces, special shoes, or other equipment for the care of the crippled child.

REPORT ON THE DIPHTHERIA IMMUNIZATION DRIVE

According to reports recently received by the Department seventeen counties have participated in the

cooperative plan instituted on January 4, 1939, by the physicians of the State and the departments of health and education to organize clinics for the administration of diphtheria toxoid.

The general interest and enthusiasm of the local communities has been extremely gratifying. Cooperation by local physicians and school officials has been marked. This has resulted in the extension of this essential protection to hundreds of infants and children who, but for this particular drive, might have been deprived of preventive treatment, at least for some time to come.

Records indicate that since the opening of this campaign sufficient amounts of diphtheria toxoid have been used to inoculate more than sixteen thousand individuals. This distribution, under the direction of the Department, was made possible because of the clinics organized under the present plan.

The counties thus far cooperating are Accomac, Amelia, Appomattox, Bedford, Bland, Campbell, Clarke, Culpeper, Cumberland, Fauquier, Fluvanna, Frederick, Giles, Goochland, Loudoun, Powhatan, and Smyth.

New Members

New members of the Medical Society of Virginia since the list published in the October 1938 issue of the MONTHLY are:

Dr. Robley Curtis Allison, Petersburg.
Dr. William Baynard Barton, Stonega
Dr. Joseph Bernstein, Arlington.
Dr. Joseph Rogers Blalock, Marion.
Dr. Paul Webster Bowden, Arlington.
Dr. Herman Harrison Braxton, Chase City.
Dr. Russell von Lehn Buxton, Newport News.
Dr. William Holmes Chapman, Suffolk.
Dr. William David Chase, McLean.
Dr. Challis Haddon Dawson, Suffolk.
Dr. Charles Welby Dorsey, Roanoke.
Dr. John Philip Eastham, Culpeper.
Dr. John Roland Ellison, Suffolk.
Dr. Herman Farber, Richmond.
Dr. John Edward Fissel, Jr., Newport News.
Dr. James Thomas Gill, Richmond.
Dr. James Martin Habel, Jr., Franklin.
Dr. Walter Glenn Hardy, Stanleytown.
Dr. William Allen Johns, Richmond.
Dr. Harold Mills Kelso, Pulaski.
Dr. Harold Wade Kinderman, Hampton.
Dr. Louis Xavier Kolipinski, Petersburg.
Dr. Byrd Stuart Leavell, Charlottesville.
Dr. Rector Sells LeGarde, Damascus.
Dr. Gershon John Levin, Norfolk.
Dr. Bernard Isaac Lidman, Norfolk.
Dr. Louis Lovenstein, Richmond.
Dr. Joseph Hawkins Low, King George.
Dr. Florence Iris Mahoney, Staunton.
Dr. William Lloyd Mason, Richmond.
Dr. Emmett Carlysle Matthews, Richmond.
Dr. John Hobart Reed, Richmond.
Dr. Wellford Claiborne Reed, Richmond.
Dr. Claude R. Robinson, Max Meadows.
Dr. Marion Thomas Rosser, Hillsville.
Dr. William Langley Sibley, Roanoke.
Dr. Charles D. Smith, Richmond.
Dr. Walton Herbert Springall, Gloucester.
Dr. William Lyons Taliaferro, Norfolk.
Dr. Elam Cooksey Toone, Jr., Richmond.
Dr. William Randolph Watkins, South Boston.
Dr. William Harvey Whitmore, Norfolk.
Dr. William Angle Young, Richmond.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.
President-Elect—MRS. HENRY A. LATANE, Alexandria.
Corresponding Secretary—MRS. PAUL PEARSON, Aylett.
Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

Mid-Winter Board Meeting.

The Mid-Winter Meeting of the Executive Board of the Woman's Auxiliary to the Medical Society of Virginia was held on Wednesday, March 1, in the Founder's Room of the Academy of Medicine in Richmond. The meeting convened at 11:30 A.M. and was opened with a prayer by the President, Mrs. Hawes Campbell. Twenty members answered to Roll Call, and practically every organized Auxiliary in the State was represented at this meeting.

The Officers and Chairmen brought in interesting reports of the first half of the year's work, which indicated that the wheels of this organization are running along smoothly, and that each Chairman, and the workers under her, are actively engaged in their respective phases of the Auxiliary's work. Mrs. Campbell's splendid report gave evidence of the untiring effort and time which she has given not only as State President but as President of her local group as well.

Mrs. Roy R. Jones of Alexandria, Chairman of Exhibits, submitted to the Board her plans for the exhibit to the May Meeting of the American Medical Auxiliary in St. Louis, and her ingenious ideas were heartily approved. The exhibit which she is working up will be something very new and novel—a thing of real beauty. One very interesting aspect is that each local Exhibit Chairman is to have a hand in making this exhibit possible. The exhibit will again be on display at the Annual Meeting of the Virginia Auxiliary in Richmond next October, and it is believed that it will prove to be a great surprise and of sheer delight to all visitors attending the State Meeting.

Tentative plans were made for the Annual Meeting, and the speaker, whom the Auxiliary hopes to have address the group, was named.

Following the morning business session, the Richmond Auxiliary was hostess to the Board at a delicious luncheon in the Dining Room of the Academy. The Board is deeply appreciative of the efforts of Mrs. James K. Hall, President, and Mrs. Charles Preston Mangum, Chairman of the Richmond Auxiliary's Social Committee, and to the members of that Committee, Mrs. Gayle Crutchfield, Mrs. Angus Nichols, and Mrs. J. O. Fitzgerald for this delightful entertainment.

Dr. Karl S. Blackwell, President of the Richmond Academy of Medicine, was the guest speaker at the luncheon, and gave some interesting suggestions on "How the Doctor's Wife can be of help to her Husband and to the Medical Profession at large."

The purpose of the Mid-Winter Meeting is to bring about the exchange of ideas of the members of the Board and to make perfect the plans formulated at the previous Annual Meeting. This Session, which adjourned in the early afternoon, was a most satisfactory one in every respect and the members returned to their homes fired with enthusiasm to make this a Bigger and Better Auxiliary Year.

JANET WATKINS STONE,
(MRS. JAMES B STONE)

Woman's Auxiliary to Norfolk County Society.

The regular meeting of this Auxiliary was held on March 6 in the Library of the Medical Arts Building, with Mrs. Millard Savage, President, presiding. It was reported that $426.03 was realized from the card party and fashion show held at the Town Club on January 31. Of this sum $365.00 will be used to maintain a patient for a year at the Tidewater Memorial Hospital; $10.00 was given to help to maintain a patient at Blue Ridge Sanatorium; and $25.00 to the tumor control clinic in Norfolk.

Plans to celebrate "Doctors' Day" in May were discussed, and it was tentatively decided to entertain the physicians at a joint meeting in May.

Mrs. Thomas Spessard was appointed chairman of a committee to dress a doll in costume to represent an outstanding local woman to be exhibited at the National Convention this spring. Dolls will be displayed from all the county auxiliaries in Virginia.

A nominating committee, composed of Mrs. Thomas Vorbrinck, chairman, and Mrs. C. J. Devine, Mrs. T. Elmore Jones, and Mrs. J. W. Anderson, was appointed to bring a slate of officers to the next meeting of the Auxiliary.

(MRS. BROCK D.) EUGENIA H. JONES,
Chairman, Press and Publicity.

Auxiliary to Lynchburg Academy.

The following were recently appointed as officers of the Lynchburg Woman's Auxiliary: President, Mrs. Edwin Harper; vice-president, Mrs. John Wyatt Davis; treasurer, Mrs. S. E. Oglesby; secretary, Mrs. Bernard Kyle; chairman of program, Mrs. R. D. Caldwell; and of publicity, Mrs. James Gorman.

A. M. A. Radio "Health" Broadcasts.

April 5—*Don't Believe Everything.* Fallacies and popular beliefs that are not true and that influence behavior in a manner detrimental to health.

April 12—*Learning to Live.* Elements of mental hygiene; getting along with people; adjustment to environment.

April 19—*Accidents Don't Just Happen.* Accidents in the home and on the highway and ways to avoid them.

April 26—*What is a Doctor?* The characteristics of a reputable physician as distinguished from cultists, quacks, fakers, faddists or exploits.

The National Convention.

The annual meeting of the Woman's Auxiliary to the American Medical Association is to be held in St. Louis, May 15-19. Its sessions are always interesting and it is pleasant to come in contact with women from other states who are doing their part to help the medical profession. Members of all local auxiliaries are invited and urged to attend.

Proceedings of the Council of the Medical Society of Virginia

The Council of the Medical Society of Virginia held its winter meeting at the Society's office on Thursday, February 16, 1939, at 1:00 P. M., with the president, Dr. Alex. F. Robertson, Jr., of Staunton, presiding. Others in attendance were: Dr. Hugh H. Trout, president-elect; Drs. Julian L. Rawls, C. E. Martin, W. C. Akers, John Hundley, Jr., C. O. Dearmont, and J. E. Knight, councilors; Drs. P. W. Miles and S. B. Moore, vice-presidents; Dr. I. C. Riggin, State Health Commissioner; Dr. E. P. Lehman; and the secretary.

There being no objection, the president dispensed with the reading of the minutes of the last meeting of the Council, published in the November issue of the MONTHLY, pages 694-696.

A summary of the financial condition of the Society, showing affairs in good shape, was received. Following this, Dr. Robertson said he would like to have Dr. Roshier Miller and Dr. C. E. Martin continue as the committee to prepare the budget for the next annual meeting.

It was moved that the report on the Maternal Welfare Committee for the year 1938 be received and filed. This was received too late to be published with other reports but was printed in the December, 1938, MONTHLY, page 766.

The secretary stated that reports from a number of committees showed that they were very active, but only one seemed to require action by the Council at this time—the Maternal Welfare Committee would like an appropriation of $10.00 or as much thereof as needed for the purpose of carrying out some special plans. It was moved by Dr. Rawls, and seconded, that this be allowed.

Dr. Robertson told of a special meeting held January 11th, to which he had called members of the Advisory Committee to the State Health Department, Dr. Walter B. Martin, chairman of the Medical Economics Committee, Dr. H. H. Trout, president-elect, Dr. Riggin, State Health Commissioner, and several others, for the purpose of conferring on the various trends in relief work and the imminence of legislation relating to health matters. It was thought wise to have such a meeting at that time as it seemed likely Congress would make an appropriation for medical relief and it was felt the Society should be prepared to act in any emergency. Those attending the meeting strongly favored having the State Health Department administer any funds which might be appropriated by Congress for public health or other medical needs, and reaffirmed the position taken by the House of Delegates at its last meeting, as expressed with the following resolution:

WHEREAS there is prospect of grants of State and Federal funds for the development and extension of certain public health activities and other medical needs, and

WHEREAS these funds should be administered and distributed in accordance with certain principles laid down by this body.

THEREFORE, BE IT RESOLVED, by the House of Delegates of the Medical Society of Virginia, assembled in Danville, Va., this 5th day of October, 1938, that we believe the Health Department of Virginia is the proper agency to receive and distribute these funds, and

BE IT FURTHER RESOLVED, that we set up a committee of five from the Medical Society of Virginia to act as an advisory committee to the State Department of Health to the end that the best interest of the people of the State may be served in the distribution and administration of such funds.

In a discussion of the National Health Program, it was felt that money would be allotted states according to their way of meeting appropriations; that some states would probably have funds administered by the Public Welfare Departments in which case lay groups would be in charge; that Congress would allow as much latitude as possible and would not write in regulations for each State. Dr. Robertson said there was no set-up in the Society to handle this matter, but he felt they should try to get it in the hands of the State Health Department and that the Advisory Committee to the Health Department would help in any way possible.

Dr. Hundley said the recommendations were similar to those of the American Public Health Association to the Technical Committee on Medical Care, and read a paragraph from these recommending that the state departments of health should be made administratively responsible for all provisions of the National Health Program which may be enacted into law.

Dr. Knight offered a motion that the Council should go on record as favoring the handling of any funds for a State health program by the State Health Department, if and when they come. This was adopted with a recommendation that the Advisory Committee to the State Health Department and Dr. Riggin work out a suitable arrangement to present to the next Legislature.

Dr. Hundley felt the Council should also go on record as endorsing the recommendations made by the American Public Health Association concerning the National Health Program. This, put in the form of a motion, was adopted.

Dr. Robertson said that at the Danville meeting the House of Delegates endorsed the work of the Women's Field Army of the American Society for the Control of Cancer and also the Virginia Cancer Foundation and, upon request of Dr. Clarkson, director of the Foundation, he later appointed an advisory committee to the Cancer Foundation. Recently, he had talked with Dr. E. P. Lehman, who has succeeded Dr. J. Shelton Horsley as chairman of the Virginia Section of the American Society for the Control of Cancer, and others, and found there was

much dissension and confusion about the work of these organizations and he felt better results would be obtained if they were united. The purpose of the Women's Field Army is educational and that of the Foundation is for the care of indigent patients. In the interest of unification of the cancer program in Virginia, he was, therefore, appointing a committee to be known as the Cancer Committee of the Medical Society of Virginia, this to absorb the personnel and duties of the Advisory Committee to the Cancer Foundation. The new committee is composed of: Dr. E. P. Lehman, chairman, Dr. I. C. Riggin, Dr. I. A. Bigger, Dr. Fred Hodges, Dr. R. L. Payne, Dr. R. P. Bell, and Dr. I. C. Harrison, with Dr. Trout and Dr. Robertson, as *ex officio* members. The duty of this committee is to act in an advisory capacity upon all cancer activities in Virginia.

Upon request, Dr. Lehman then presented the following report:

To the Council of the Medical Society of Virginia:

At the request of the Executive Committee of the Women's Field Army representing the American Society for the Control of Cancer in the State of Virginia, your president has appointed a Cancer Committee of the State Society consisting of the following members: Dr. Edwin P. Lehman, chairman, Dr. Richard P. Bell, Dr. Isaac A. Bigger, Dr. Isaac C. Harrison, Dr. Fred M. Hodges, Dr. Robert L. Payne, Dr. Irl C. Riggin, and *ex officio,* Dr. Alex. Robertson, Jr., and Dr. Hugh H. Trout. These men are the personnel of the Executive Committee of the Women's Field Army, and of the Advisory Committee of the State Society of the Virginia Cancer Foundation, previously appointed by your President at the request of the latter organization.

It is the aim of this Committee to represent the profession of the State in all cancer control activities within the State. Specifically, its duties and program will consist of the following:

(1) To attempt through the Executive Committee of the Women's Field Army to unify all activities in the control of cancer within the State.

(2) To act in an advisory capacity to the Executive Committee of the Women's Field Army and to any other organizations interested in the control of cancer in Virginia.

(3) To sponsor the appointment of local cancer committees in each component society of the Medical Society of Virginia.

(4) To certify treatment centers for cancer throughout the State under provisions of previously announced qualifications in equipment and personnel, such centers to be available for the expenditure of funds raised by the Women's Field Army or the Virginia Cancer Foundation in the care of indigent cancer patients.

It is felt by your Committee that one reason for the lack of real success in earlier efforts directed towards the control of cancer in Virginia has been the absence of active cooperation by the State Society. The profession of the State carries very directly the responsibility for the control of cancer. Your Committee, acting in conjunction with the thoroughly established and successful American Society for the Control of Cancer, must necessarily further this important object, so real in the experience of every doctor.

A resolution supporting the activities of this Committee is requested from the Council.

Respectfully submitted,
EDWIN P. LEHMAN, M. D.,
Chairman, Cancer Committee,
Medical Society of Virginia.

Dr. Lehman explained that the set-up proposed for Virginia is similar to that already working in Maine, the Women's Field Army being in charge of the educational program and the Foundation being for the purpose of securing funds for treatment of indigent patients. Of the money raised from memberships, thirty per cent goes to the National Association and seventy per cent is for use in the State. If the membership is increased to 20,000, however, only ten per cent will go out of the State.

A motion was made, seconded and adopted, endorsing the program of the Cancer Committee of the Society, as outlined by Dr. Lehman.

Dr. Robertson stated that the secretary had advised him that the expense accounts of guests to the Danville meeting had amounted to nearly $120.00 instead of the $60.00 allowed in the budget, and he had instructed her to pay these. A motion was made and adopted that the payment of this additional amount be approved.

In a discussion of this feature of the budget, it was felt that $60.00 was a very small amount to allow for expenses of guests, and Dr. Knight recommended that an amount up to $200.00, if necessary, be allowed for expenses of invited guests to the annual meetings. This was approved.

The secretary was asked to read the following statement from Mr. Richmond Maury, president of the William Byrd Press, in regard to the first volume of *Medicine in Virginia,* the publication of which was sponsored by the Society:

Jules Chodax of the Southern Book Company, 122 West Franklin Street, Baltimore, Maryland, offered 60¢ a copy for approximately 600 copies of MEDICINE IN VIRGINIA IN THE SEVENTEENTH CENTURY in flat sheet form and approximately 425 copies bound, to be paid for in cash at our door on delivery. I explained to you that we were not under any financial pressure that would make this transaction desirable if it were not desirable because of other considerations. We have sold and collected for 419 copies of the edition. Our contract with the Medical Society of Virginia provides that after 750 copies are sold we begin to pay a royalty to the Society of 50¢ a copy.

I stated that we had approximately $200 invested in the book, exclusive of any consideration of our interest in the investment or storage charge. In view of this, it was my suggestion that if the Medical Society of Virginia approved of this sale the William Byrd Press be paid this $200 and the remaining $400 be split evenly between the Medical Society of Virginia and the William Byrd Press.

I made it clear to Dr. Blanton and I would like to repeat to you that we do not feel any consideration whatever should be given, in considering this sale, to the fact that the venture thus far has not been profitable to the William Byrd Press.

It was felt it might not be wise for the Society to dispose of its rights in this book but Dr. Rawls did not feel that the publishers should suffer a loss by the fact that sales had been slower than expected and thought it might be well to pay them the amount of about $200.00 representing the remainder of their investment in the volume, the receipts from future sales to be divided between the Society and the publishers. Dr. Martin moved that the president appoint a committee to sit in with Dr. Wyndham Blanton, the author, to decide promptly in regard to the sale of these books, the committee to have power to act. This was seconded and adopted, whereupon the president

appointed Dr. Roshier Miller to confer with Dr. Blanton on this subject.

Dates for the seventieth annual meeting of the Society in Richmond were set as October 3, 4, and 5, 1939, as this seemed the time most suitable to the local committee and for a speaker selected by the president.

Just at adjournment, word came of the death of Dr. J. C. Flippin, an ex-president, and a telegram was ordered to be sent Mrs. Flippin, expressing sympathy and the sense of loss felt by the Society in his death. Dr. Robertson also appointed a committee composed of Drs. Trout, Rawls, and Dearmont to prepare resolutions on his death.

AGNES V. EDWARDS,
Secretary.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Eli Lilly & Co.
- Ampules Metycaine 2 per cent, 30 cc., in rubber stoppered vials.

Mead Johnson & Co.
- Mead's Nicotinic Acid Tablets, 20 mg.

The Upjohn Co.
- Solution Procaine Hydrochloride 2 per cent, 30 cc. vials.
- Solution Procaine Hydrochloride ½ per cent with Epinephrine, 5 cc.
- Ampoule Solution Procaine Hydrochloride 2 per cent with Epinephrine, 1 cc.
- Ampoule Solution Procaine Hydrochloride 2 per cent with Epinephrine, 3 cc.
- Solution Procaine Hydrochloride 1 per cent with Epinephrine, 30 cc. vials.
- Solution Procaine Hydrochloride 2 per cent with Epinephrine, 30 cc. vials.

Propaganda for Reform

Recent Developments in the Treatment of Undulent Fever.—The increased recognition and incidence of undulant fever has fortunately been associated with new and improved methods of treating this disease, in both its acute and its chronic form. Vaccines have been employed for about ten years, in many instances with apparent success. Convalescent serum and transfusion with whole blood have also been reported as sometimes successful in the treatment of the disease. During the past year favorable reports of the treatment of undulant fever with sulfanilamide or its compounds have rapidly accumulated. From the information available it seems likely that sulfanilamide in rather large doses is necessary but that at least in some resistant cases the results are comparable, if not superior, to any other form of treatment of undulant fever thus far proposed. Successful results have also been claimed for physically induced hyperpyrexia treatments, and the intravenous administration of neoarsphenamine. Although a decision as to the value of any method of treatment in undulant fever is difficult because of the alternation of febrile periods and afebrile pauses, the available methods of therapy are such as to allow the disease to be met with a much more powerful therapeutic armamentarium than existed a few years ago. (*J. A. M. A.*, November 5, 1938, p. 1769.)

Mode of Action of Sulfanilamide.—Apparently sulfanilamide possesses a specific chemotherapeutic effect on the beta-hemolytic streptococcus; it is of low toxicity, is easily administered, is quickly absorbed and is more effective in vivo than in vitro. The results obtained in the treatment of puerperal sepsis and in hemolytic streptococcus meningitis are sufficiently dramatic to warrant the enthusiasm aroused by this new chemotherapeutic agent. In a recent communication, Long and Bliss (Ann. Surg., 108:808, November, 1938) analyze toxic manifestations which have occurred during the course of treatment with sulfanilamide in 335 cases at the Johns Hopkins Hospital. The most common toxic effects manifested were dizziness, headache, a loss of ability to concentrate, anorexia, nausea and, in some instances, vomiting. Cyanosis of varying degrees was almost constant. This is said by some observers to be due to sulfhemoglobinemia, by others to methemoglobinemia. Clinical acidosis as evidenced by combination of hypernoia and a lowered carbon dioxide combining power has been noted in 3 per cent of the cases. The most serious toxic manifestations are those associated with the blood or hematopoietic system. The mechanism of this type of anemia is not clearly understood, but it would seem to be the result of an idiosyncrasy toward the drug. Sulfanilamide is a potent chemotherapeutic agent for combating certain types of invasive bacterial disease. The precise mechanism of its action on bacteria, as well as its toxic effects, have not been clearly elucidated. Lockwood (Ann. Surg., 108:801, November, 1938) demonstrated that the concentration of the drug in the amount of 10 mg. per hundred cubic centimeters of whole blood prevented the multiplication of young virulent streptococci in test tube experiments. Lockwood and his colleagues (*The Journal,* 111:2259, December 17, 1938) similarly conclude that the striking effect of sulfanilamide is a depression of the invasive properties of the organism. The optimum level for treatment in severe cases seems to lie between 5 and 10 mg. per hundred cubic centimeters of blood. Sulfanilamide induces a physio-chemical alteration in the antigenic structure of hemolytic streptococci which decreases the invasive capacity of virulence of the bacteria. (*J. A. M. A.*, December 17, 1938, p. 2304.)

Sulfanilamide and Bacteriostasis.—In a recent report on the mechanism of action of sulfanilamide on bacterial infections, Osgood and Powell (Proc. Soc. Exper. Biol. & Med., 39:37, October, 1938) found that sulfanilamide in concentrations of 1:1,000 or less did not inactivate in vitro significant amounts of the hemotoxins of the beta-hemolytic streptococcus, hemolytic Staphylococcus aureus, Clostridium oedematis-maligni, Clostridium tetani or Baccilus perfringens. Neither did sulfanilamide therapy significantly affect the course of intoxication in guinea pigs injected with as little as one minimal lethal dose of diphtheric or tetanus toxin. Maegraith and Vollum

(Brit. M. J., 2:985, November 12, 1938) have recently investigated the bacteriostatic properties of three sulfanilamide derivatives using Staphylococcus viridans and Staphylococcus aureus, examined by the slide method of Wright, modified by Fleming. This technic was also used in cases of Neisseria gonorrhoeae and Neisseria meningitidis. Their observations indicate that the bacteriostatic effect was dependent on the presence of leukocytes. The consensus at present is therefore that sulfanilamide and some of its derivatives exert a bacteriostatic effect in different degrees depending on the type of organism and the nature of the derivative but that the presence of leukocytes and probably some other factors are necessary for effective action. (*J. A. M. A.*, December 17, 1938, p. 2306.)

Sulfapyridine in Pneumonia.—Since its introduction, too short a time has elapsed for adequate study, and at the present time there is no conclusive evidence that sulfapyridine is of value in the treatment of the penumonias in man, though informal reports made so far indicate encouraging results. To reach a conclusion concerning the value of this or other therapy for pneumonia, one must learn whether among the patients who receive the treatment more lives are saved and whether there is less bacteremia and fewer complications than among those from whom it is withheld. So far the product has not been licensed by the Federal Food and Drug Administration for sale in interstate commerce. The advisory committee on pneumonia control of the New York State Department of Health believes that the evidence of the safety and therapeutic value of sulfapyridine in the treatment of any of the various types of pneumococcic pneumonia is at the present time inconclusive. According to a resolution adopted by the committee at a meeting December 16, the committee further believes that the distribution of this drug should be restricted to experimental centers having facilities for careful study of toxicity and therapeutic efficiency until adequate evidence of the safety of the use of the drug and its therapeutic efficiency has been obtained. (*J. A. M. A.*, January 7, 1939, p. 76).

Trichloroethylene.—The Council on Pharmacy and Chemistry has adopted the following addition to the statement on trichloroethylene now appearing in New and Nonofficial Remedies, 1938, p. 54:

"Trichloroethylene has recently been proposed for use in the prevention and treatment of attacks of angina pectoris. It is believed that trichloroethylene is worthy of trial for this purpose, provided patients are under continued medical supervision, as in the clinic. Trichloroethylene is a general anesthetic, and its use for this purpose is subject to all the dangers and disadvantages of anesthetics. It should never be prescribed in bulk or taken in large doses. From 1 to 3 cc. a day, in divided doses, is ample. The drug should always be taken with the patient in a reclining position, and the material should not be substituted for amyl nitrite in the treatment of the acute anginal attack. Each patient should be warned of the possibility of addiction. Excessive dosage of trichloroethylene may mask a severe attack of coronary pain and lead to its being ignored where it should receive immediate medical attention, together with bed rest. It should be used cautiously in the prevention of attacks because it may mask pain which otherwise would indicate exertion beyond the capacity of the heart."
(*J. A. M. A.*, January 14, 1939, p. 145.)

Book Announcements

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

LIVERSEEGER, J. F. Adulteration and analysis of foods and drugs.
MALLORY, F. B. Pathological technique.
MCGREGOR, H. G. The emotional factors in visceral disease.
MILLER & DAVIDSON. Practical pathology.
PAULSEN, F. An autobiography.
REIMANN, H. A. The pneumonias.
RIESMAN, D. Medicine in modern society.
RIGGS, A. F. Play recreation in a balanced life.
VON REUSS, A. The diseases of the newborn.
WADDINGTON, J. E. G. Physical therapy.

Trauma and Internal Disease. A Basis for Medical and Legal Evaluation of the Etiology, Pathology, Clinical Processes, Following Injury. By FRANK W. SPICER, A.B., M.D., F.A.C.P. Philadelphia. J. B. Lippincott Company. 1939. Octavo of xix-593 pages. 43 illustrations. Cloth. Price, $7.00.

This volume of 548 pages attempts to cover the relation of truma to general problems of medicine. The impression is that the author has made a real contribution to medical literature by bringing together in one volume these widely scattered data concerning the effects of trauma and its treatment.

The only adverse criticism is that the field is such a wide one and it involves so much special knowledge that it is doubtful whether any single individual can hope to express a very adequate opinion on such a diverse group of subjects. The reviewer gets the impression that in some places the author is well versed with the subject, while in others his knowledge is of a limited character.

The references are very well chosen, but in many instances important omissions have occurred.

However, the book should be in the hands of everyone engaged in the practice of medicine for the reason that there is no phase of medicine which is assuming a more prominent place than the problem of trauma and disease.

WILLIAM B. PORTER, M.D.

Virginia Medical Monthly

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Editorial

Fifty Kinds of Pneumonia.

World wide interest in pneumonia continues to grow. A decade ago pneumonia therapy labored under the weight of years of pessimism. In spite of many attempts at new treatment the death rate had continued unabated. Now light has dawned. Now there is a general admission that serum therapy will reduce the morbidity of pneumonia on the average of at least 50 per cent and there is hope that sulfanilamide and sulfpyradine will still further reduce the death rate.

During these recent years of successful investigation there have appeared in medical literature the expected large number of articles dealing with various phases of pneumonia, and there have been two or three books which have admirably summarized the current writing on the subject.

The latest of these books is from the press of W. B. Saunders Company, Philadelphia, and is written by Hobart A. Reismann, M.D., professor of medicine in Jefferson Medical College. *The Pneumonias,* as it is entitled, is a concise and clear presentation of present knowledge compressed into 350 pages. The subject is presented entirely from the etiological point of view and on this basis an admirable classification is given. The specific forms of pneumonia occupy the first section of the book—the typical pneumonias and the atypical pneumonias, caused by the cocci (of which the pneumococcus is foremost), by the bacilli, by the viruses, the fungi and the molds. In the second section pneumonia as a specific form of systemic disease is presented. Part three is concerned with pneumonia secondary to acute and chronic diseases, mechanical causes, shock, senility and the mixed infections. The final section briefly discusses certain rare and recently described pneumonias which are of intense interest, such as lipoid pneumonia, radiation pneumonia and allergic pneumonia. Altogether more than fifty-odd varieties of the disease are discussed.

As one closes the book one is convinced that Dr. Reismann has done a good job. One is also convinced that pneumonia under the modern conception is a specialty of wide ramifications and that until every case is thoroughly studied bacteriologically with due regard to epidemiological factors and with reliance upon such essential aids as roentgenology, accurate diagnosis and effective therapy are impossible.

The Endocrine Dilemma.

Professor W. G. Crockett's article published elsewhere in this issue of the MONTHLY as well as the following communication from Dr. R. J. Main relative to it are of such extreme interest and importance at this time that they deserve the attention of the medical profession of Virginia.

Dr. Main's comments furnished at the Editor's request point the way to a practical solution of the

dilemma that faces us all, and it is hoped that the Medical Society of Virginia will take appropriate action at its next meeting. Dr. Main writes:

"The article in this issue by Professor W. G. Crockett, Phar.D., listing preparations and strengths of the various endocrine extracts of gonadotropic, estrogenic, and androgenic hormones, should prove valuable both to physicians and pharmacists, for it contains certain information not readily available elsewhere. Each year I have drawn up a similar, though very inadequate summary of such preparations for the benefit of students, but I have never had the time or ambition to do the thorough job which Doctor Crockett has so satisfactorily accomplished. I expect to make good use of this article this year for teaching purposes, except that I will arbitrarily omit certain products whose advertising statements sound too Utopian. The reason I consider this information of value, is that the 1938 N. N. R. (supplement) lists only two brands of two estrogenic hormones, and no androgenic, gonadotropic, luteal, or growth preparations. Granted that such a publication must be conservative, data on other brands and hormones should be readily available. It is true that the therapeutic status of these is not proven, but they are being widely used nevertheless, and up to date unbiased information concerning them should be easily obtainable. At present, for instance, a physician wishing to administer an androgenic hormone, is forced to rely upon the manufacturer's recommendation as to mode of treatment, as he seldom has the time or facilities to investigate the literature for original articles. Does this not mean that we are permitting commercial concerns to teach postgraduate medicine?

"To remedy this condition, I would like to see the Medical Society of Virginia appoint a committee to publish a yearly comparison of these endocrine products, including indications, prices, dosages, preparations, and dangers of misuse—to continue until sufficient are incorporated in the N. N. R. to make it unnecessary. Although such a report should not be considered a recommendation—as inclusion in the N. N. R. is regarded—nevertheless I consider that some control should be exercised, i.e. to include no preparation of the estrogenic, androgenic, or luteal hormones which does not state the amount of the pure hormone it contains, and to drop entirely the classification of International Units for these three hormones, which can now be discarded as having served its purpose.

"Since it is now impossible to compare potencies of various preparations, especially of the growth hormone, because of the various assay procedures used, the committee could undoubtedly obtain from the manufacturers a statement of the strength of their preparations in terms of one specific test, so that comparisons could be made. I suspect that the reason for such a multiplicity of tests for both gonadotropic and growth hormones is not that manufacturers can not agree upon a suitable test, but is rather because some preparations would show up very poorly if all were subjected to the same assay. Even though the manufacturer may prefer to state on the label the strength according to his favorite test, he should be willing to tell such a committee the strength of his preparation when assayed by some other method.

"If a manufacturer should refuse to give information allowing comparison of his product with others, I believe it might as well be omitted from the report, as indicative that the comparison would reflect upon the potency.

"Such a report should omit all reference to, unless to damn, unassayed hormone preparations, and those standardized by methods no longer accepted. This rejection of unassayed preparations would automatically omit such soup stock as dried testicular extract, dried mammary gland, dried parathyroid, dried ovary and corpus luteum, and various whole gland pituitary extracts containing 'all the active principles'. Reference to a few recent articles pro and con could be included, together with the commitee's judgment.

"Naturally the manufacturers will not appreciate having the prices of their products listed, since possibly a short time after publication of the report they may decide to lower them. However, it will then be up to them to see that the physician learns about it. I consider it better to know what the price of a product was a year ago than to have no idea at all. What one really needs to know is not whether a preparation costs $2.50 or $2.30 per dozen ampules, but if it costs in the neighborhood of 25c an ampule, or $4.00.

"It is easy to say that the average physician should not attempt to use such non-official preparations as the growth hormone; that he is not in a position to accurately rate the results. That is the theory. The fact is what physician will refuse to do some-

thing for a child who threatens to remain a dwarf, if there is any possibility of helping him? At any rate, even if this is considered inadvisable, at least we should not discourage it by childishly attempting to withhold such information. The conclusions of the committee should point out such objections.

"While we are at it, why not have this committee include a report on certain new drugs, such as sulfanilamide and sulfpyradine: whether it is necessary to administer $NaHCO_3$ with it, for what diseases it has proven of value, and those in which it has not. Again, it might also include a brief review of recommended vitamin preparations. In short, this yearly report could cover all controversial important preparations, to afford the physician a source of data on these drugs aside from the advertising material with which he is deluged and which, as some have so unkindly suggested, may be tainted with bias."

The Wilbur Addresses.

The March of Medicine by Ray Lyman Wilbur, M.D., President of Stanford University (Stanford University Press, 1938) is a selection of addresses and articles on medical topics by a distinguished physician and educator. The book might well have been entitled *The Way of Wilbur* for in a sense it is the account of the geographical and biographical pilgrimage of the author for the last twenty-five years of his life. It represents two and a half decades of the life of a teacher, a practitioner of medicine, a president of the American Medical Association, a cabinet officer, a student of medical economics, a university president. It represents more than a score of years of his thinking and lecturing about biology and therapeutics, curricula, medical education, teaching, hospitals, public health and the newer economic problems of medicine. It is a recounting of his journeyings at the most important and fruitful period of his life through medicine and its many impingements on society and government.

It is good reading for the doctor. Here is a chart and compass, inspiration and idealism, liberalism and a position always in the vanguard of progress. Dr. Wilbur sees clearly for his fellow physicians responsibilities far out-reaching the circumscribed limits that are implied in the diagnosis and treatment of disease. In his opinion the doctor has a role to play in preserving the family as a social unit, in popularizing and making effective present knowledge concerning eugenics, in driving charlatans, quacks and frauds to cover, in combating the social scourge of alcohol, in disease prevention through wider implementation of the public health service, and in working out an economic plan whereby no citizen will be denied adequate medical service no matter what his ability to pay may be. Dr. Wilbur's ambitions for medicine as a profession are pointedly expressed in one of his earlier addresses. In discussing the future relation of the physician to the state and in defending the thesis that medicine is a profession not a trade, he says: "We can unite for higher standards, better ethics, purer ideals; but we cannot strike for shorter or limited hours or less responsibility."

To the lay reader this series of addresses will prove neither dull nor technical. He may be surprised to find how wide and catholic are the interests of the medical profession, how profound and varied are its problems. He may come upon it as a new idea that medical ethics is not the petty subject it is sometimes considered to be by the uninformed, but that it has a meaning of deep and wide significance with roots indubitably connected with the welfare of human beings. It is to be hoped that in their absorption in the glamorous aspects of medicine, in their suspicion of the commercial motives of medicine, in their determination to spread rapidly the scientific benefits of medicine, the public will not neglect this dignified exposition of the liberal physician's point of view voiced by a medical statesman.

Department of Clinical and Medical Education
of the
Medical Society of Virginia

Courses in Internal Medicine.

The departmental report last month announced the subjects and dates for the course in internal medicine arranged in Alexandria, Virginia, with the cooperation of the Alexandria Medical Society. The report also announced tentative plans for courses in

Lynchburg and in Martinsville. The details for the Lynchburg and Martinsville courses have now been completed and are as follows.

LYNCHBURG

Friday, April 7. 8:00 p.m.
Congestive Heart Failure with reference to Diuresis. Dr. W. B. Porter, Medical College of Virginia

Friday, April 14. 8:00 p.m.
Deficiency Diseases and Their Treatment. Dr. Harry Walker, Medical College of Virginia

Friday, April 21. 8:00 p.m.
Acute Nephritis. Dr. Edwin Wood, University of Virginia

Friday, April 28. 8:00 p.m.
Diseases of the Thyroid, Suprarenal and Parathyroid Glands. Dr. H. B. Mulholland, University of Virginia

Friday, May 5. 8:00 p.m.
Acidosis, Alkalosis and Dehydration. Dr. Mulholland

Friday, May 12. 8:00 p.m.
Recent Advances in the Study of Hypertension and Their Bearing on Treatment. Dr. Edwin Wood

Friday, May 19. 8:00 p.m.
Carbohydrate Metabolism. Dr. Mulholland

Friday, May 26. 8:00 p.m.
Rheumatic Fever. Dr. Edwin Wood

Friday, June 2. 8:00 p.m.
Late Toxemias of Pregnancy. Dr. Tiffany Williams, University of Virginia

Friday, June 9. 8:00 p.m.
Classification and Treatment of the Anemias. Dr. J. H. Scherer, Medical College of Virginia

Relevant clinical cases or case histories and a round-table discussion will follow each meeting.

MARTINSVILLE

Tuesday, March 14. 3:00 p.m.
Headaches. Dr. John M. Meredith, Assistant Professor of Neurological Surgery, University of Virginia

Tuesday, March 21. 3:00 p.m.
Endocrinology—with special reference to Menstrual Disorders. Dr. Edwin C. Hamblen, Associate Professor of Obstetrics and Gynecology and Director of Endocrine Division, Duke University

Tuesday, March 28. 3:00 p.m.
Deficiency Diseases and Their Treatment. Dr. David T. Smith, Associate Professor of Medicine, Duke University

Tuesday, April 7. 3:00 p.m.
Pneumonia—with special reference to Serum Treatment. Dr. H. B. Mulholland, Professor of Practice of Medicine, University of Virginia

Friday, April 14. 7:00 p.m.
Gall Bladder Disease and Its Treatment. Dr. Staige D. Blackford, Assistant Professor of Practice of Medicine, University of Virginia

Following each meeting there will be a presentation of clinical cases or case histories relevant to the subject and a round-table discussion.

Other local societies desiring to arrange for similar courses are invited to correspond with the Executive Secretary.

The McGuire Lectures and Postgraduate Clinics

Of the Medical College of Virginia will be held April 27 and 28.

The McGuire Lectures will be at 8:30 on both evenings. The speaker for these will be Dr. Wilder Penfield, B. Litt., M.A., M.D., B.Sc., D.Sc.(Oxon), F.R.C.S.(C), of the Neurological Institute of Montreal, Canada The first lecture, on the 27th, will be on "Epilepsy, Mechanism and Pathology" and the second on "Epilepsies—Selective Study and Surgical Therapy".

The post-graduate seminar on Neuropsychiatry on the 28th, will begin at 10:00 a.m., with the following subjects: "The Relation of State Hospitals to Out-Patient Clinics for Mental Diseases" by Dr. H. C. Henry, Associate in Neuropsychiatry and Director of State Hospitals of Virginia; "Fever Therapy" by Dr. J. Asa Shield, Associate in Neuropsychiatry; "The Use of Insulin and Metrazol in the Treatment of Psychoses" by Dr. Joseph R. Blalock, Associate in Psychiatry and Superintendent of Southwestern State Hospital; "Management of the Functionally Nervous case" by Dr. R. Finley Gayle, Jr., Professor of Neuropsychiatry; and "Eugenic Sterilization of the Epileptic and Mentally Deficient" by Dr. G. B. Arnold, Superintendent of the Capitol State Colony for Feebleminded and Epileptics.

Discussions and demonstrations on Neurological Surgery will begin at 2:00 o'clock, with the following participants: Dr. C. C. Coleman, Professor of Neurological Surgery, presiding; Dr. Charles Bagley, Jr. (Invited Guest), Professor of Neurological

Surgery, University of Maryland, Baltimore; Dr. W. Gayle Crutchfield, Assistant Professor of Neurological Surgery; and Dr. J. M. Meredith (Invited Guest), Assistant Professor of Neurological Surgery, University of Virginia Hospital.

All lectures will be held in the auditorium of the Richmond Academy of Medicine Building, 1200 East Clay Street, Richmond.

GEORGE B. ZEHMER,
Executive Secretary,
Box 1487, University Station,
Charlottesville, Virginia.

Proceedings of Societies

The Wise County Medical Society

Held its annual meeting on February 23, at which time officers were elected for the ensuing year as follows: President, Dr. G. B. Bowers, Stonega; vice-presidents, Dr. C. H. Henderson, Norton, Dr. J. D. Culbertson, Coeburn, and Dr. F. S. Givens, Wise. Dr. C. L. Harshbarger of Norton was re-elected secretary-treasurer. The Board of Censors for the year is composed of Dr. G. T. Foust, Norton, Dr. W. R. Culbertson, Coeburn, and Dr. W. B. Peters, Appalachia. New members admitted during the past year include: Drs. W. B. Barton of Stonega, J. H. Liebman and J. J. Porter of Norton, and R. M. Lechausse of Pardee.

Danville-Pittsylvania Academy of Medicine.

At the regular meeting of the Academy on March 14, Dr. C. P. Mangum of Richmond spoke on Pediatric Endocrinology, and Dr. E. C. Hamblen of Duke University discussed the Adrenal Gland. It was announced that at the next meeting, to be held April 11, Dr. T. J. Williams of the University of Virginia will be guest speaker, his subject to be Toxemias of Pregnancy.

Dr. P. W. Miles and Dr. S. C. Hall, both of Danville, are president and secretary, respectively, of the Academy.

The Lynchburg Academy of Medicine

Held its regular meeting in the Elks' Club on March 6, with the president, Dr. S. E. Oglesby, presiding. This was one of the most largely attended meetings of the Academy. Dr. Waldo M. Wattles was unanimously elected to membership, and a letter from Mrs. J. C. Flippin was read, expressing appreciation for a floral wreath sent as a token of sympathy and esteem at the time of Dr. Flippin's death.

Dr. E. G. Scott announced that the special course in Internal Medicine to be held weekly through the Department of Clinical and Medical Education of the State Society would start April 7.

Dr. Bayard Carter, professor of gynecology and obstetrics at Duke University, was the guest speaker. He gave an excellent illustrated talk on "External Genitalia Lesions of the Female". Prior to the meeting, Dr. J. W. Devine had given a dinner to members and guests in honor of Dr. Carter.

Dr. Harvey Brownley stated that Dr. A. I. Dodson, professor of urology at the Medical College of Virginia, Richmond, would be the guest speaker in April.

Dr. C. E. Keefer of Lynchburg is secretary of the Academy.

The Roanoke Academy of Medicine

Held its regular monthly meeting on March 6. The following scientific program was presented: Birth of Conjoined Twins, Eight and One-Half Months Gestation, by Dr. H. C. Padgett; Carcinoma of the Rectum by Dr. W. L. Sibley; and The Management of Far Advanced Pulmonary Tuberculosis by Dr. L. R. Broome.

Dr. W. W. S. Butler is president of the Academy and Dr. A. C. Davis, secretary.

The Southside Virginia Medical Association

Held its regular quarterly meeting in Franklin on March 21. The scientific program consisted of a symposium on Diseases of the Chest. The following were speakers and their subjects: Dr. John A. Proffitt, Burkeville, on The Early Signs and Symptoms of Tuberculosis of the Chest; Dr. Porter P. Vinson, Richmond, on Aids in the Early Diagnosis of Primary Carcinoma of the Bronchus; Dr. Wright Clarkson, Petersburg, on The X-ray in the Diagnosis of Diseases of the Chest; Dr. Louis H. Clerf, Philadelphia, Pa., on Bronchiectasis: A consideration of Its Causes and Its Prevention; and Dr. I. A.

Bigger, Richmond, on Surgery of the Chest. Following dinner at the Stonewall Hotel, a round-table discussion of the symposium was held.

Dr. C. S. Dodd, Petersburg, is president of this Association, and Dr. R. L. Raiford, Franklin, secretary-treasurer.

News Notes

Leaders Who Lead.

Some persons are naturally endowed with those qualities defined as "leadership", often vague in implication but unmistakable in result. Members of the medical profession hold a high place in this group and it is to these leaders that the National Tuberculosis Association and its affiliated organizations appeal this month in its annual Early Diagnosis campaign. Two hundred people die each day from tuberculosis in the United States. Eight out of ten persons, when admitted to sanatoria, are in an advanced stage of the disease. Advanced tuberculosis is difficult, often impossible, to cure. Early tuberculosis is difficult to find, but is usually easy to cure. Therefore, members of the medical profession, in this case, are in a unique position, which calls for leadership with a keen sense of public duty.

Physicians know that cases presenting physical signs and symptoms sufficient to warrant a visit to the doctor rarely are in the minimal stage. They know that tuberculosis may be detected by the X-ray months before it can be heard with the stethoscope. Doctors are asked to help spread this information to patients and the general public. Impress upon them the value of an annual health examination including an X-ray. Help find the spreaders of this disease who may be hidden in the family circle or among friends.

The Virginia Society of Oto-Laryngology and Ophthalmology

Will hold its annual meeting at Hotel Roanoke, Roanoke, on Saturday, May 6, 1939, under the presidency of Dr. Charles T. St. Clair of Bluefield, W. Va. In addition to the regular program, there will be two prominent guest speakers. Dr. Mortimer H. Williams, Roanoke, is secretary of this Society.

The Southwestern Virginia Medical Society

Will hold its Spring meeting in Bristol, April 13, with Dr. H. W. Bachman of that city presiding. The one-day plan has been selected and the meeting will open with a scientific program beginning at 1:30 p.m. The regular banquet, with Dr. E. C. Hamblen of Duke University as the guest speaker, will be held at 6:30. His subject will be Endocrinology. Dr. James P. King of Radford is secretary, and the local committee in charge of arrangements is composed of Dr. George McCall, chairman, and Drs. W. M. Gammon and W. R. Rogers.

Annual Scientific Assembly at Washington.

The Medical Society of the District of Columbia announces that its Annual Scientific Assembly will be held April 25, 26, and 27, in the Mayflower Hotel in Washington. Gastroenterology in all its phases will be the subject covered in the three-day postgraduate course, offering about fifty-two papers, panels and round tables on the subject. The program lists in addition to many prominent physicians of the faculties in Washington the following from elsewhere: Dr. Lewellys L. Barker, Baltimore; Dr. Fred Rankin, Lexington, Kentucky; Dr. L. M. Hurxthal of Lahey Clinic, Boston; Dr. R. J. Coffey, formerly of Mayo Clinic; Dr. B. B. Vincent Lyon, Philadelphia; Dr. E. H. Gaither, Baltimore; Dr. P. P. Vinson, Richmond; Dr. Eloise B. Cram, National Health Institute.

Luncheons, stag meeting, banquet, and entertainment for visiting wives are provided by the Society.

Reservations are being taken by Theodore Wiprud, Secretary of the Society, 1718 M St., N. W., who will forward full information on request.

Medical College of Virginia News.

Dr. Lewis E. Jarrett, Director of the Hospital Division, attended the regional conference of the American College of Surgeons in Baltimore recently, giving a paper on "Professional Standards as Affecting Hospital Practice".

The woman's medical fraternity of the college sponsored an address by Dr. Priscilla White of Boston on March 7 at the Richmond Academy of Medicine. Dr. White spoke on "Some of the Newer and Interesting Phases of Diabetes".

The annual spring symposium of the school of pharmacy was held March 9. Speakers included Dr. E. F. Kelly, secretary of the American Pharmaceutical Association; Mr. A. L. I. Winne, secretary of the State Board of Pharmacy; Dr. Harvey B. Haag, professor of pharmacology, Dr. Rolland J. Main, associate professor of physiology, and Dr. Roshier W. Miller, professor of materia medica, of the college faculty, and Mr. W. G. Tarrant, a druggist of the city. Dr. J. A. Reese, assistant professor of pharmacognosy acted as chairman of the committee on arrangements for the symposium.

Dr. Patrick F. Drewry, Jr., has been appointed full-time assistant professor of neuropsychiatry. Dr. Drewry is now in London for special study in this field under a fellowship grant from the Rockefeller Foundation. He will some to the college next spring when it is anticipated the new hospital, which will have an active psychiatric service, will be completed.

Dr. William T. Sanger, president of the college, will make the Founders' Day address at Bridgewater College, April 3. On this occasion he will be awarded the honorary degree of Doctor of Humane Letters by his alma mater.

Dr. Fred P. Fletcher, president of the alumni association, met with the New York alumni on March 18.

Dr. Max Minor Peet, professor of surgery, University of Michigan, was a visitor to the college on March 16. During his visit he lectured to the junior and senior classes of the school of medicine.

Dr. William B. Porter, professor of medicine, attended the annual meeting of the American College of Physicians in New Orleans, March 27-April 1.

News from the University of Virginia, Department of Medicine.

The Nemours Foundation of Wilmington, Delaware, has awarded a Fellowship to Dr. Julian R. Beckwith, Senior Resident in Medicine, for research in the field of pressor substances in the School of Biochemistry under the direction of Professor Alfred Chanutin.

At the meeting of the University of Virginia Medical Society on February 27, Dr. Porter Vinson of Richmond spoke on the subject of Gastroscopy.

On March 3, Dr. H. B. Mulholland delivered the second lecture in a postgraduate course in Internal Medicine in Alexandria, Virginia, under the auspices of the Division of Extension of the University of Virginia. He spoke on Diseases of the Thyroid, Suprarenal and Parathyroid Glands.

On March 3 and 4, Dr. Fletcher Woodward spoke before the Georgia State Eye, Ear, Nose and Throat Society in Atlanta, Georgia, on the subjects Treatment of Acute Ear Infections and Treatment of Acute Sinusitis in Children.

Lieutenant-Colonel E. B. Maynard, of the Reserve Officers Training Corps, Medical College of Virginia, addressed the students of the Fourth Year Class on February 15.

On March 10, Dr. Oscar Swineford, Jr., gave the second lecture in the postgraduate course in Internal Medicine in Alexandria, Virginia. He spoke on the subject of Rheumatism.

Dr. Clarence Little, Director of the Jackson Memorial Laboratory at Bar Harbor, Maine, addressed the University of Virginia Chapter of Sigma Xi on March 7. His subject was Genetics of Cancer.

Dr. J. R. Massie,

Who was for sometime health officer of the Dickenson-Wise-Scott Health Unit, with headquarters at Norton, is now on the surgical staff of the Hospital Division of the Medical College of Virginia in Richmond.

Married.

Dr. Thomas Edmond Hughes of Richmond and Miss Mary Elizabeth Warren, of Delaplane, February 23.

Dr. James Brooke Pettis

Has been appointed as director of clinical psychiatry at the Western State Hospital, Staunton. This is a new position, the purpose of which is to develop more comprehensive clinical work under a specially trained psychiatrist and, at the same time, to relieve the superintendents of this phase of the work. Clinical psychiatry directors are to be assigned to other State hospitals as staff vacancies and hospital budgets permit.

Dr. Pettis is a native of Norfolk and graduated from the Medical College of Virginia in 1930. He has recently been clinical psychiatrist and director of mental hygiene clinics of the New Jersey State Hospital, Marlboro, N. J.

Southeastern Surgical Congress.

At the annual meeting of this Association, held in Atlanta, the first of March, the following officers were elected: President, Dr. Irvin Abell, Louisville, Ky.; vice-president, Dr. Grady Clay, Atlanta; and secretary-treasurer Dr. W. T. Beasley (re-elected), Atlanta.

News Notes from Duke University School of Medicine.

On March 1, a lecture on "Drug Addictions", was given by Dr. Lawrence Kolb, Assistant Surgeon General of the U. S. Public Health Service, in charge of Mental Hygiene.

On March 8, a motion picture film on industrial accidents and their care was shown by Dr. Henry H. Kessler, American authority on Cineplastic Surgery.

On March 9, a lecture and motion picture on "Life Camps" was given by Dr. L. B. Sharp, Director of Life Camps.

American Medical Association.

The next meeting of the Association is to be in St. Louis, Mo., May 15-19. Full information in regard to this will appear in *The Journal of the A. M. A.*, from time to time. This is simply a reminder to those who expect to attend.

The American Physicians' Art Association,

Composed of members in the United States, Canada, and Hawaii, will hold its second Art Exhibit in the City Art Museum of St. Louis, May 14-20, 1939, during the annual session of the American Medical Association. Art pieces will be accepted for this art show in the following classifications: (1) oils both (a) portrait and (b) landscape; (2) water colors; (3) sculpture; (4) photographic art; (5) etchings; (6) ceramics; (7) pastels; (8) charcoal drawings; (9) book-binding; (10) wood carving; (11) metal work (jewelry). Practically all pieces sent in will be accepted. There will be over sixty valuable prize awards. For details of membership in this Association and rules of the Exhibit, kindly write to Max Thorek, M.D., Sec'ty, 850 Irving Park Blvd., Chicago, Ill., or F. H. Redewill, M.D., Pres., 521-536 Flood Bldg., San Francisco, Calif.

Dr. Fishbein to Speak in Richmond.

Dr. Morris Fishbein, Editor of the *Journal of the American Medical Association,* will be the speaker before the section on Medical Care of the Virginia Conference on Social Work, to be held in Richmond on April 20. His subject will be "Social Aspects of Medical Care".

Among other speakers for this meeting will be Dr. Wyndham B. Blanton, Editor of the VIRGINIA MEDICAL MONTHLY, and Dr. R. W. Garnett, City Health Officer of Danville.

Dr. W. O. Tune,

Brookneal, has been appointed by Governor Price as a member of the Commission on County Government.

Dr. R. H. Harrington,

For some time at Grant, is now located in Marion.

The New York World's Fair.

Every phase of the progress made in recent years to improve the health of communities will be portrayed at the New York World's Fair. In addition to effective exhibits in the Medical and Health Building, the Hall of Pharmacy, and elsewhere, numerous lectures are to be given. Among these will be the discourses on child health and care at the Children's World, where children can be left under the constant supervision of trained attendants.

Various health organizations are holding meetings and conventions in connection with the Fair and these events will be celebrated by special days assigned to each group. Among the dates which have been allotted so far are: May 1-8, National Child Health Week; May 12, National Hospital Day, Nurses Day; May 16, American Medical Association; May 17, Red Cross; May 19, Tenth International Congress of Military Medicine and Pharmacy; May 31, State Medical Association; June 3, American Academy of Pediatrics; June 4, American Society for the Hard of Hearing; June 18, New York City Health Department; June 23, School Health Day; June 27, County Medical Association; and October 21, National Health.

Annual Prize Offered.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons announces that the annual Foundation Prize for this year will be $100.00. Those eligible include only (1) interns, residents, or graduate students in Obstetrics, Gynecology and Abdominal Surgery, and (2) physicians (M.D. degree) who are actually practicing or teaching Obstetrics, Gynecology or Abdominal Surgery.

Competing manuscripts must (1) be presented in

triplicate under a nom-de-plume to the Secretary of the Association before June 1, (2) be limited to 5,000 words and such illustrations as are necessary for a clear exposition of the thesis, and (3) be typewritten (double-spaced) on one side of the sheets, with ample margins.

The successful thesis must be presented at the next annual (September) meeting of the Association, without expense to the Association and in conformity with its regulations.

For further details, address Dr. James R. Bloss, Secretary, 418 11th Street, Huntington, W. Va.

Dr. L. S. Early,

Petersburg, was re-elected chairman of the Salvation Army Advisory Board of that city, at its annual meeting on February 27.

New Assistant Physician at Eastern State Hospital.

Dr. L. T. Browning was appointed by the State Hospital Board to the position of Assistant Physician at Eastern State Hospital, Williamsburg, effective March 1. He is a native of West Virginia, a graduate of the University of Louisville, and, at the time of his appointment, was in charge of the male receiving and acute psychiatric service at Kankakee State Hospital, in Illinois.

National Health Council.

The re-election is announced of Ira V. Hiscock, professor of Public Health in Yale University School of Medicine, as president of the National Health Council for 1939.

Congress of Military Medicine and Pharmacy.

The tenth International Congress of Military Medicine and Pharmacy will be held in Washington, D. C., May 7 to 15, inclusive. In addition to the scientific program, visits have been planned to a number of nearby places which have an especial interest for those connected with military life. Registration is without fee and blanks will be sent all medical officers of the military, naval, air and public health services, or others interested, on application to the secretary-general, Col. Harold W. Jones, M.C., U. S. Army, Washington, D. C.

Student and Senior Internes Wanted.

The California State Personnel Board has issued a statement that they wish to recruit the best qualified persons for Student Interne and Senior Interne. There is no residence requirement for these examinations and no written test will be given. Applicants will be rated on education, experience and appraisal of scholastic record. Applications may be filed at any time during 1939 and will be rated immediately. If a candidate's qualifications, after investigation, are acceptable, his name will be placed on the list of those eligible for employment, in accordance with his rating.

For further information, address Mr. Louis J. Kroeger, executive officer, State Personnel Board, 1025 P Street, Sacramento, California.

Dr. Paul L. Dent,

Louisville, Ky., announces the removal of his offices from 3812 Frankfort Avenue to 2202 West Broadway, that city.

Dr. Williams to Serve as Delegate.

Dr. Carrington Williams, Richmond, will serve as one of the delegates from the Medical Society of Virginia to the American Medical Association, at its meeting in St. Louis, filling the vacancy caused by the death of Dr. J. C. Flippin.

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Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

Obituary Record

Dr. John Alsop Pilcher, Jr.,

Prominent young Roanoke physician, died suddenly March 7. He was thirty-four years of age and

a graduate of the University of Virginia, Department of Medicine, in 1929. Dr. Pilcher located in Roanoke in 1931 where he was connected with the Gill Memorial Eye, Ear and Throat Hospital. He had recently completed a post-graduate course in London and had opened offices for private practice the first of the year. Dr. Pilcher joined the Medical Society of Virginia in 1932. His wife survives him.

Dr. Garland Lightfoot Morriss

Of Blackstone died February 24, following a long illness. He was a native of Richmond and sixty years of age. Dr. Morriss graduated from the former University College of Medicine, Richmond, in 1902, and practiced in Buckingham County for many years where he was prominent in public affairs, serving as treasurer of the county and as a member of the board of supervisors. He had been in Blackstone for the past four years. He was a member of Acca Temple Shriners, the Kenbridge Kiwanis Club, and the Medical Society of Virginia. His wife and a daughter survive him.

Dr. Cecil Dabney

Died at his home in Baltimore on March 7, having been in ill health for the past nine years. He was fifty-five years of age and received his medical degree from the University of Virginia in 1910. Dr. Dabney formerly served as a medical missionary in China. His wife survives him.

Resolutions on Dr. Flippin.

WHEREAS God in His infinite wisdom has seen fit to remove from our midst our friend, colleague and co-worker, Dr. J. Carroll Flippin,

BE IT RESOLVED that we, representing the Medical Society of Virginia, extend to his wife and children our esteem, love and sympathy, and

BE IT RESOLVED that in the death of Dr. Flippin, a former President of our Society, the State of Virginia has lost a most valuable citizen, and the medical profession of Virginia an advisor whose counsel will be greatly missed.

AND FURTHERMORE BE IT RESOLVED that a copy of these resolutions be printed in the VIRGINIA MEDICAL MONTHLY and sent to the family.

HUGH H. TROUT, M. D.
C. O. DEARMONT, M. D.
JULIAN L. RAWLS, M. D.
Committee from the Council of the Medical Society of Virginia.

Resolutions on Dr. McKinney.

The Staff of the Lewis-Gale Hospital records with profound sorrow the death on February 3, 1939, of one of its members, Dr. Joseph T. McKinney. Coming to Roanoke several months following his discharge from the Army in 1919, he became a member of this staff, and for a period of twenty years he was chief of the Rotentgen Ray Department. Ever diligent in keeping abreast of the progress being made in all the branches of medicine, and of the developments in his own specialty, he acquired a broad knowledge, which with powers of keen observation and logical deduction, enabled him to express fearlessly though modestly his opinions.

He was a member of the local and State medical societies, and of the American Medical Association. He was also a member of the American Roentgen Ray Society, of the Radiological Society of North America, and of the American College of Radiology.

Although busy in his own department, he devoted much time and thought to the improvement of the hospital in order for it to meet the constantly increasing standards set by the American College of Surgeons and the American Hospital Association. With a sense of pride in the steady growth of this hospital, he saw the new addition to it opened last April, although he was not permitted to live long enough to see his own department with new equipment in the new and enlarged quarters.

Although he achieved eminence in Roentgenology, his activities were not limited to medicine. The catholicity of his interests, combined with a genial nature, and a sympathetic understanding, made him an attentive listener to the problems of his fellowmen, and his efforts to help them, won for him a position of esteem and honor in the city.

THEREFORE, BE IT RESOLVED, *First,* that in the passing of Dr. McKinney the Lewis-Gale Hospital has lost a faithful member of its Staff.

Second, that we, the other members of the Staff, have list a faithful colleague and associate, and

Third, that we tender our heartfelt sympathy to the members of his family in their loss and bereavement, and we trust that, with the Comfort which comes from the Heavenly Father, they will find consolation in the knowledge of the services rendered by Dr. McKinney to the hospital, to the members of his profession, and to his community, of his devotion to and his love for his home, his church, his community and his country, of his thoughtfulness as a husband, his devotion as a father, and his loyalty as a friend, and that in all these relationships he merited the esteem and honor of all who knew him.

BE IT RESOLVED FURTHER, that a copy of these resolutions be sent to the family, one to the VIRGINIA MEDICAL MONTHLY, and a copy be filed with the minutes of the Staff.

Signed: THE STAFF OF THE LEWIS-GALE HOSPITAL.

Rear Admiral George Tucker Smith,

U. S. N., retired, Charlottesville, died March 18. He was seventy-three years of age and a graduate of the University of Virginia, Department of Medicine, in 1888. Dr. Smith was formerly a medical director in the U. S. Navy. He was a member of the Medical Society of Virginia.

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VIRGINIA MEDICAL MONTHLY

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70th Annual Meeting, Medical Society of Virginia, in Richmond, October 3-5, 1939.

Vol. 66, No. 5.
WHOLE No. 1043.

RICHMOND, VA., MAY, 1939

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CONTENTS

A Clinical Study of the Therapeutic Usefulness of Mandelic Acid. A. I. Dodson, M. D., and P. W. Oden, M. D., Richmond, Va. 255
So-called Spontaneous Subarachnoid Hemorrhage with Transient Hemiparesis, Aphasia and Psychosis—Report of a Case. P. G. Hamlin, M. D., Cambridge, Md. 257
Treatment of Hemangiomas and Lymphangiomas in Infants and Children. Fred M. Hodges, M. D., L. O. Snead, M. D., and R. A. Berger, M. D., Richmond, Va. 263
A Case of Streptococcus Meningitis of Otogenic Origin with Recovery. Allen T. Hawthorne, M. D., Winchester, Va. 267
Current Trends in the Treatment of Chronic Arthritis. Wm. H. Higgins, M. D., Richmond, Va. 269
The Management of Organic Foreign Bodies in the Trachea and Bronchi of Children—Illustrated with Lantern Slides. Elbyrne G. Gill, M. D., Roanoke, Va. 275
Observations on the Therapeutic Effects of Nicotinic Acid in Pellagra and Related Conditions. Elam C. Toone, Jr., M. D., Richmond, Va., and J. L. Berkley, M. D., Charleston, W. Va. 282
Hydrocephalus of the Fetus Complicating Pregnancy—A Report of Two Cases. Richard B. Nicholls, M. D., Norfolk, Va. 288
The General Care of a Diabetic. William R. Jordan, M. D., Richmond, Va. 291
A Case of Malignant Keratomalacia. C. W. Trexler, M. D., Honolulu, Hawaii 293
Diagnosis of Syphilis. Lawrence T. Price, M. D., Richmond, Va. 294
Cervical Dystocia. Albert T. Walker, M. A., M. D., Portsmouth, Va. 300
Functional Gastro-Inestinal Disease. H. G. Hudnall, M. D., Covington, Va. 302
CORRESPONDENCE 304
PUBLIC HEALTH STATISTICS 304
WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 305
TRUTH ABOUT MEDICINE 307
EDITORIAL 308
PROCEEDINGS OF SOCIETIES 310
NEWS NOTES 311
OBITUARY RECORD 316

INDEX TO ADVERTISERS—Advertising Page 6

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A CLINICAL STUDY OF THE THERAPEUTIC USEFULNESS OF MANDELIC ACID.*

A. I. Dodson, M.D.,
and
P. W. Oden, M.D.,
Richmond, Virginia.

Mandelic acid is now universally recognized as a useful chemotherapeutic agent in the treatment of urinary tract infections. As early as 1883 Schatten determined that the drug, when fed to dogs, could be almost entirely recovered from the urine, yet its bactericidal value was only recognized when Rosenheim, searching for a drug similar to betahydroxybutyric acid which, when given by mouth would resist oxidation and be eliminated in the urine, discovered the therapeutic usefulness of mandelic acid. Betahydroxybutyric acid had been proved by Fuller to be responsible for the bactericidal effect of the ketogenic diet, but unfortunately, in addition to being difficult to obtain, when given by mouth it is completely oxidized in the body. Rosenheim found that mandelic acid could be recovered, unchanged, in the urine and that in sufficient dosage, it would kill bacteria provided the urine was highly acid.

By laboratory tests Carroll, Lewis and Kappel found that mandelic acid in .19 to 1 per cent solution in urine with an acidity of ph 5.5 or less was definitely bactericidal to the majority of pathogenic bacteria usually found in the urine—the more acid the urine the less concentration of the drug required. Urine of ph 4.5 would itself destroy most organisms. In their experiments, Escherichia Coli and bacillus proteus were the most easily killed. Streptococci required a more concentrated solution, while Aerobacter Aerogenes and Pseudomonas Pyocyaneus were even more resistant. Clinically, bacillus proteus has such an alkalinizing effect on the urine that mandelic acid is not effective. When treating patients, these workers found the drug helpful in eradicating the colon bacillus (escherichia), but decidedly less effectual when the infection was caused by other organisms. Edward N. Cook found that the cocci were, as a rule, not affected by mandelic acid except the streptococcus fecalis, which was usually eradicated by its use.

It is important to remember that mandelic acid is ineffective except in highly acid urine. The ph should be 5.5 or lower. This is easily determined by the use of nitrazene paper and a color chart which can be obtained from any druggist. Diminished kidney function, obstructive lesions in the urinary tract, stones or tumors render the drug less useful in these cases. An accurate knowledge of the function and drainage of the urinary tract is desirable before beginning any type of chemotherapy. This is particularly desirable in cases of long standing.

Mandelic acid has a disagreeable taste and occasionally produces nausea. These objectionable features can often be made tolerable by reducing the dose and gradually increasing it to therapeutic amount.

A few red blood cells and hyaline casts are occasionally noted after prolonged administration. These evidences of renal irritation rapidly subside when the drug is discontinued. Evidence of irritation of the liver has been noted in animals given large doses of mandelic acid. It is apparent that the drug should be administered cautiously in individuals known to have deficient function in either the liver or the kidneys.

The dose is twelve grams of the acid daily. It is usually administered in the form of a syrup,

*From the Urological Service of the Hospital Division of the Medical College of Virginia.

The Mandelic Acid used in this study was furnished by the Wm. P. Poythress Drug Company, Richmond, Va.

two fluid drachms four times a day; or an elixir, three to four fluid drachms four times a day.

This report includes forty-two cases of pyelonephritis treated with mandelic acid in the hospital division of the Medical College of Virginia. There were thirty-three white and eleven colored patients. Only four of this group were men, all of whom were white. The ages averaged thirty years, varying from ten to seventy-one. Patients with complicating diseases of the urinary tract that could not be satisfactorily corrected by catheter drainage or operation were excluded from the study.

Patients admitted with severe toxic symptoms such as nausea, chills and high fever, were treated prior to using mandelic acid, by forcing fluids, catheter drainage and occasionally neo-salvarsan intravenously until toxic symptoms had subsided and they could take solid food. The symptoms on admission were chiefly chills and fever, pain in the lumbar region or right lower quadrant of the abdomen, and frequent and painful urination. Four patients complained of nausea and three came because of suprapubic pain. On examination, twenty-four patients were tender over one or both lower quadrants of the abdomen. There was tenderness and muscle spasm over the right upper quadrant in one case and tenderness over the suprapubic area in two. Forty patients had a fever varying from 105° F. to 99° F. on admission (Table I). On admission all patients had pyuria varying from a few to innumerable cells. On discharge, in all except three cases pus had disappeared from the urine or had been greatly reduced (Table II). Although most of the bacteria usually found in the urine were encountered in cultures, Colon Bacilli were predominant (Table III).

TABLE I

TEMPERATURE ON ADMISSION AND DISCHARGE

TEMPERATURE	ON ADMISSION	ON DISCHARGE
105 to 104	5	0
104 to 103	5	0
103 to 102	5	0
102 to 101	6	0
101 to 100	9	0
100 to 99	10	1
98.6	2	41
TOTAL	42	42

TABLE II

NUMBER OF PUS CELLS TO HIGH POWER FIELD CENTRIFUGED URINE	ON ADMISSION	ON DISCHARGE
100 or more	18	0
50 to 100	3	0
25 to 50	5	3
10 to 25	10	3
5 to 10	6	7
5 or less	0	21
None	0	8
TOTAL	42	42

TABLE III

ORGANISMS ENCOUNTERED

ORGANISMS	NUMBER OF CASES
Escherichia Coli	16
Escherichia Coli with Bacillus Alkaligenes	2
Escherichia Coli with Staphylococcus Aureus	2
Bacillus Alkaligenes	2
Escherichia Coli, Streptococcus and Bacillus Proteus	2
Escherichia Coli with Aerobacter Aerogenes	4
Bacillus Proteus	1
Streptococcus Hemolyticus, Aerobacter Aerogenes and Bacillus Alkaligenes	1
Bacillus Pyocyaneous	1
Escherichia Coli, Bacillus Proteus, Aerobacter Aerogenes	1
Escherichia Coli, Staphylococcus, Aerobacter Aerogenes	1
Staphylococcus Albus	1
Bacillus Proteus, Bacillus Alkaligenes	1
Escherichia Coli, Streptococcus Hemolyticus	3
Escherichia Coli, A. Aerogenes, B. Pyocyaneus	1
Escherichia Coli, B. Proteus, Streptococcus non-hemolyticus, A. Aerogenes	1
Culture negative throughout	2
TOTAL	42

Twelve patients required operative or cystoscopic treatment. One had bilateral renal calculi removed and another had a single calculus removed from the right kidney. A nephropexy was done in one case and a strictured ureter dilated in another. In five cases the infection was complicated by pregnancy, in two of these pregnancy was terminated by hysterotomy because of excessive toxemia. The acute symptoms were controlled in the other three by catheter drainage. In one case an appendectomy was done and in one a laparotomy for adenocarcinoma of the ovary. One patient was treated with radium for carcinoma of the cervix.

The average stay in the hospital for these patients —26.9 days—was prolonged by additional hospitalization necessary for patients with complications. The average number of days on mandelic acid was nine days. All patients were given an acid-ash diet and ammonium chloride until an acidity of ph 5.2 was reached before mandelic acid was given; there-

after the urine was checked daily for the number of pus cells and acidity.

There were thirteen patients whose urine on admission showed a pure culture of escherichia coli. In five cases pus disappeared when the urine reached an acidity of ph 5.2. Eight patients were free of pus when discharged and in six no organisms were grown in the urine. (These were all infected with E. Coli on admission.) Therefore, one-half of the pure E. Coli infections were free of pus on discharge and more than a third had negative cultures. Thirty-one patients were symptom free. Twenty-one of these had five or less pus cells to the high power field, many of them only an occasional pus cell. The remaining ten showed a definite reduction in the number of cells, seven having fewer than ten cells when they left the hospital. Pus cells and bacteria could have been eradicated from many of these patients if they could have been kept under treatment long enough, but for various reasons many of them passed from our observation before we were ready to discharge them.

A study of Table II, showing the relative pyuria on admission and on discharge, gives the best idea of the effectiveness of mandelic acid as a urinary antiseptic. No other treatment was given these patients while they were taking the drug. Operative and cystoscópic procedures necessary in some cases were carried out before mandelic acid was given.

Three of the forty-two patients were not improved. The urine of two of these could not be kept acid. The results in the other, we could not explain; kidney function was good, no organisms were found except E. Coli, and the urine remained strongly acid.

The drug was tolerated well in all of the patients of this group and evidence of toxicity, consisting of casts in the urine, was noted in only one case. The casts promptly disappeared when treatment was discontinued.

CONCLUSIONS: From this study representing a small group of patients with pyelonephritis, many of whom could not be kept under treatment as long as we should have liked, we are of the opinion that mandelic acid is a safe drug in the necessary dosage and, when an acidity of the urine is maintained at or below ph 5.2, it is very effective in combating infections of the urinary tract. It is more effective when Escherichia Coli is the sole infecting organism and, like all urinary antiseptics, its usefulness is handicapped by poor kidney function and obstructive lesions.

Professional Building.

SO-CALLED SPONTANEOUS SUBARACHNOID HEMORRHAGE WITH TRANSIENT HEMIPARESIS, APHASIA AND PSYCHOSIS—REPORT OF A CASE.*

P. G. HAMLIN, M.D.,
Cambridge, Maryland.

DESCRIPTIVE

An excellent word picture of the syndrome, dubiously called "spontaneous subarachnoid hemorrhage," is given by Ayer[1] ". . . it should be of general interest as it must be differentiated from traumatic subarachnoid or subdural hemorrhage. It may be a cause of sudden death and it does have medico-legal importance. Clinically it is a syndrome characterized by precipitous, sudden onset with extreme violent headache, dizziness, nausea and collapse. There is marked rigidity of the neck and a bloody spinal fluid. There may be partial or total loss of consciousness, but there is no gross cerebral localization. It constitutes, according to Martland, 2 per cent of sudden deaths and although death may occur within an hour it is never instantaneous. Probably 50 per cent of patients recover. . . ."

That hemorrhage into the subarachnoid space may occur in a variety of conditions is well known. Some of the conditions are: cerebral neoplasms, especially angiomata; neurosyphilis; various types of meningitis; purpura; hemophilia; leukemia; rupture of a cerebral cyst into the lateral ventricle;[7] in malignant or subacute bacterial endocarditis. In a case observed by Symonds[11] an aneurysm of the descending aorta spread upwards intrathecally and ruptured within the cranial cavity and into the subarachnoid space. It is interesting to add that Freed (*Arch. Neurol. and Psychiatry*, 39:813, April, 1938) has observed a case of subarachnoid hemor-

*Read before the sixty-ninth annual session of the Medical Society of Virginia, at Danville, Va., October 4-6, 1938.

rhage in a schizophrenic undergoing insulin shock therapy.

But over and above these there are cases, without discernible clinical or laboratory signs of disease, that exhibit the findings of the syndrome known as "spontaneous subarachnoid hemorrhage." The adjective spontaneous is of hazy qualification as it implies a lack of knowledge of etiology and pathology, whereas it is generally now accepted that the condition is due to the rupture of an intracranial aneurysm or aneurysms.

Symonds,[2] after Froin, says "We may consider the arachnoid membrane as consisting of two layers—parietal and visceral. The parietal layer consists of a sheet of endothelial cells lining the internal surface of the dura mater. The visceral layer consists of a thin transparent sheet of connective tissue covered with endothelial cells, which upon its external surface is separate from but lies closely applied to the parietal layer; internal to this again is the pia mater, which is attached to and therefore follows closely the surface of the brain and spinal cord. . . .

"The potential cavity lying between the parietal and visceral layers of the arachnoid is known as the subdural space; that which lies between the arachnoid and pia mater is the subarachnoid space. This latter space is normally occupied by the cerebro-spinal fluid. Although it is a free space in the sense that all parts of it communicate with one another, it is to some extent broken by the innumerable fine trabeculae passing between the arachnoid and the pia mater which support the vessels running therein. Through the roof of the fourth ventricle, the subarachnoid space is in direct communication with the cerebral ventricles. In a caudal direction it extends as far as the first or second sacral vertebra. In this space blood may readily gain entrance from four different sources.

1. "An effusion originating within the subdural space (as commonly from traumatic laceration of the veins leading from the cerebral cortex to the great sinuses) may rupture the visceral layers of the arachnoid membrane and gain entrance to the subarachnoid space in this wise.

2. "A hemorrhage into the superficial parts of the nervous substance may break through the pia mater into the subarachnoid space.

3. "A deeply situated cerebral hemorrhage may rupture into one of the ventricles and thence the effusion may find its way into the subarachnoid space through the roof of the fourth ventricle (this and the preceding variety have been referred to by Froin as examples of cerebro-meningeal hemorrhage).

4. "The hemorrhage may be derived from one of the vessels lying in the subarachnoid space itself."

Ayer[1] felt that spontaneous subarachnoid hemorrhage belongs usually to the latter group and that it involves the rupture of an aneurysm or aneurysms of one of the vessels of the circle of Willis or some vessel contiguous thereto. He advances most convincing evidence, anatomical and mechanical, to support this thesis.

HISTORICAL

Symonds[2] and Ohler and Hurwitz[8] review the history of the syndrome. Wilks,[2] of Guy's Hospital, London, in 1859 described the post-mortem findings in four cases.

Gintrac[8] in 1869 was able to find thirty-four cases in the recorded literature. Bramwell[3] in 1886 wrote a most interesting account describing the clinical and post-mortem findings in a case caused by rupture of an aneurysm of the left internal carotid at its terminal portion at the base of the brain. The introduction of Quincke's lumbar puncture in 1891, coupled with Froin's observations on the spinal fluid in 1903, did for the recognition of subarachnoid bleeding what the general use of the Roentgen ray has done for the recognition of Paget's disease of the skull—made it a matter of easy accomplishment.

One of the earliest of American writers on the subject was Samuel Leopold, of Philadelphia, who published an account in the *Journal of the American Medical Association* in 1914. Symonds' masterly monograph was published in 1924 and Josephine Neal's observations in 1926 (*J.A.M.A.*, Vol. 84).

In the nine years from 1929 to 1937 inclusive, there were some fifty-seven different communications under the heading "Spontaneous Subarachnoid Hemorrhage" in the recorded literature. These embraced reports of perhaps between two and three hundred cases. These reports came from all sections and many States of the Union as well as foreign countries. S. D. Blackford[2] of the University of Virginia reported four interesting cases, one with autopsy and histological studies, to this Society at its annual meeting in 1931.

During the nine-year period referred to, besides reports from the United States, many came from Canada, Australia, the British Isles, New Zealand, India, Italy, South America, Germany and Japan.

A close scrutiny of these, however, indicates clearly that some were cases of subarachnoid bleeding occurring in other conditions rather than the strictly so-called spontaneous subarachnoid hemorrhage.

CASE REPORT

A white male, twenty-eight years of age, who had been seen separately by two competent practitioners, in the first instance about forty hours before admission, in the second about twenty-four hours, was received at the Eastern Shore State Hospital, on March 21, 1938, at 7:30 P. M. Both physicians thought the patient drunk.

At the time of admission the man was restless, slightly resistive and mentally confused. Blood pressure was 140/100. Pupils were small, measuring approximately 3 mm. each; they reacted to electric light stimulation. When the flashlight was thrown in his face the patient showed definite irritability, frowned and turned his head away. He was thoroughly dehydrated; the tongue was coated and the breath foul. He reacted acutely to light and noise, moaning and groaning as he was being examined on admission. The nutrition of the body was good; there was slight cyanosis of the lips, and constant groaning and gritting of the teeth. There was air hunger, manifested by yawning.

Family History: Since the patient's illness it has been reported that the father is in critical condition with carcinoma. The mother is a high strung emotionally unstable woman who seems in good physical health. A paternal aunt was for many months confined to a state mental hospital but is said to have "recovered one hundred per cent." A sister of the patient is a precocious girl of twelve years who seems physically robust.

Past Personal History: The patient was a forceps delivery—born at home. No untoward symptoms noted after delivery in mother or child. He graduated in the high school of a town of about ten thousand inhabitants. Occupation, clerk in drug store. All of 1937 he is said to have felt badly—"just dragged along." During that year he took one-half pint of whiskey daily. In August, 1937, he became ill on the beach (perhaps, though not definitely, had nausea and vomiting). For a period of five hours he talked and behaved irrationally. He recovered and returned to work within forty-eight hours. He complained frequently of discomfort in the head and headache during the year. During 1937, his weight advanced from 130 to 170 lbs. (At the time of his admission to hospital he appeared to weigh 145 lbs.). About four weeks before the onset of his present illness he is said to have had "his sinuses drained" by a physician.

Present Illness: The patient was in his usual health until Saturday night, March 19, 1938. In the evening of that day he went riding with his fiancee and returned to her house at midnight. The girl got out of the car on her side and the patient stepped out on his. According to her account, as he stepped to the street he began to unbutton his shirt collar. He then took off his coat, tie and vest and climbed back into the rear seat of the car. The girl greatly puzzled and frightened by his behavior snapped on the dome light of the car, and saw him stretched limp on the seat with "his eyes rolled back and froth coming from his mouth." He appeared unconscious and made no response to her efforts to arouse him.

She drove him to the doctor's office. He vomited several times on his way, a journey of perhaps six or eight miles. The physician, knowing that for sometime he had been drinking habitually, is said to have told the fiancee that his condition was due to liquor, to take him home and let him sleep it off. He was then driven four miles out in the country and put to bed. His bowels moved during this ride.

He remained at home during the early hours of Sunday morning, all during the day Sunday, Sunday night, and Monday. He was brought to the hospital at 7:30 P. M. Monday. During this period at home he took no solid nourishment and only a small quantity of liquids. He slept fitfully. His mother stated that he had five convulsions; that these did not involve the muscles of the limbs but were manifested by quivering of the eyes and the muscles of the face.

Course in Hospital. *March 22.*—Patient took about 900 cc. of orange juice, milk and water during the day. He had three light (facial muscle) convulsions during the day. The face drooped on the right side; pupils reacted to light; there was a left-sided Babinski and rigidity and retraction of the neck.

The writer was hurriedly summoned to the ward at 3:45 P. M.; the attendant reported the pulse at 128 per minute and the general condition alarming. The writer arrived on the ward within ten minutes; heart action was found to be seventy-two (with stethoscope). The patient's general condition was such that it was decided to give him 50 cc. of 50

per cent intravenous glucose and to do a spinal tap. The spinal subarachnoid space was easily entered and bloody spinal fluid (well mixed) was obtained; The fluid continued bloody until the needle was withdrawn. Between 15 and 20 cc. of fluid was removed —this rather large amount because of increasing evidence of cerebral compression. There was no manometer available and the pressure was not determined, but judging by the rate of flow, it was manifestly much increased. There was a light seizure about twenty minutes after the puncture. The urine showed specific gravity of 1014, contained no sugar and only a very faint trace of albumin. Ophthalmoscopic examination of the fundus showed definite papulo-edema on the left, none on the right.

March 23.—A brief neurological examination of the patient was made. It was thought wiser not to subject him to prolonged routine neurological examination in view of the convulsive movements. The right pupil measured 3 mm., the left 2 mm. Babinski's sign present on right, a normal plantar response on left; the knee jerks were abolished on both sides. During the examination the patient had a slight attack in which there were tic like movements involving particularly the muscles on the right side of the face. It was of short duration lasting not more than three or four seconds. There was no ankle klonus on either side; tendon reflexes of the upper extremities were active, particularly on the right side. Reaction of the pupils to light present, but not complete; neck muscles were rigid. The patient was semi-stuporous during examination. Kernig's sign was present on both sides. Frequently the patient put his hand to his head as though in pain, and ever since admission he has reacted bitterly to movements of the head, neck and shoulders; obviously there was pain on manipulation of these parts.

March 24.—The patient had a great number of seizures today; these involved the muscles of the face. They lasted only a few seconds at a time (five to ten seconds).

March 25.—The patient showed a definite weakness of the right side of the face as evidenced by the ironing out of that side and by his failure to retract the mouth on that side equally with the left side. Today he was cooperative, the partial stupor had disappeared and an aphasia presented itself. The patient groped for the right word and at times could merely utter syllables. This was particularly evident at times of excitement or emotional stress. Jargon speech was present; paraphasia. He couldn't name objects shown him, neither did he name objects felt, heard or tasted. Alexia and agraphia present but incomplete; he appeared to read a little very poorly and could write very poorly. His intelligence was affected somewhat; at first he could not understand orders or carry out the simplest commands, but this feature improved very rapidly. There was possibly some transitory ataxia in right upper extermity, but this was of short duration. Astereognosis and sensory state were not determined. Hemianopsia, if present, was not discovered. He showed a weakness (paresis) but not a paralysis of the right arm and to a very slight extent of the right leg.

By April 9th, the patient had shown steady progressive improvement. His aphasia was clearing up, muscle power in face and arm was rapidly returning; right leg appeared entirely normal and there was no disturbance of gait. He complained of occasional headache. He was a little emotional but apparently entirely oriented and showed no disturbance of sensorium. Fever which attained a maximum elevation of 101 degrees F. and daily averaged during the febrile stage approximately 100 degrees F., returned to normal on March 31st.

The first spinal puncture was done on March 22nd, when the patient had been in the hospital about twenty hours. The indication was the evidence of increasing cerebral compression. The fluid contained much free blood. The second puncture was done on March 24th, at 8:00 A. M. It, too, contained much free blood. The third was made on March 30th; the fluid was xanthochromic. The fourth and last puncture was done on April 4th; the fluid was entirely clear. Unfortunately the only culture on the fluid was contaminated by staphylococcus aureus. Spinal fluid Wassermann was twice reported negative; blood Wassermann was also negative.

At the time of the first spinal puncture, diagnosis of probable "spontaneous subarachnoid hemorrhage" was considered on the basis of the history of the acute onset, the presence of the meningeal syndrome, and the finding of free blood in the subarachnoid space. There was no evidence of peripheral arteriosclerosis nor cerebral arteriosclerosis in the eye grounds. There was moderate but not marked hypertension (systolic 150, diastolic 100.) Syphilis was later excluded on the basis of the negative blood and spinal fluid Wassermann reports; meningitis

was excluded on the type of fever and the clinical course.

The patient was paroled home on a convalescent status on April 16th. His aphasia had greatly improved, his gait was normal; there was very slight weakness of the right arm; no noticeable facial asymmetry. He seemed mentally clear and in good spirits.

On April 28th, the patient visited the hospital at his own wish. His only obvious defect seemed to be the remnant of his aphasia. In conversation with the hospital superintendent, he attempted to describe the activities of the then brisk strawberry season. "They are little round ones and they can them." He was then asked "Do you mean strawberries?" He replied "Yes." Further he said, "I am anxious to go crabbing; no (with vexation), that is not what I mean." "Do you mean fishing?" he was asked. "Yes" was his reply. He seemed happy and mentally alert and exhibited a sort of smiling euphoria.

On July 31st, the patient again visited the hospital at the request of the writer who was then preparing this case report. At this time there had been a change of mood. His affect alternated between a smiling euphoria and a depression of spirits with mild suspicion. There seemed to be some deterioration of or loss of personality; there was also great fabrication. He told "tall tales" of his former prowess as a detective and the money he had made on various cases. A report was received that he had threatened his fiancee with shooting for her and suicide for himself. It was stated that he was very jealous of her. It was ascertained that shortly after this visit to the hospital he typed or had typed a letter on the hospital letter-head, which he secured in some mysterious manner, stating that he was mentally all right. To this the writer's name was forged. It is difficult (and hardly necessary) to make this patient's psychosis fit into any of our nosological tables. It would probably be just to say that it is a Korsakoff's syndrome. This psychosis is commonly seen, and its prognosis is said to be good in subarachnoid hemorrhage.[5]

COMMENT

"Spontaneous subarachnoid hemorrhage" (so-called) is properly restricted to cases of subarachnoid bleeding due to rupture of an intracranial aneurysm or aneurysms, usually in young people, most frequently in young adults. (Symonds' cases averaged thirty years, Josephine Neal's,[9] twenty-seven years).

The causes of the aneurysm and its rupture have been very obscurely understood until rather recently. The accumulation of adequate necropsy records with careful gross and histological observations has served to put the conception of the syndrome on a much sounder pathological basis. Inborn defect of cerebral vessels with breach of the media[2] near the point of juncture of either a normal or an anomalous vessel, cerebral arteriosclerosis which may exist in young people without demonstrable peripheral arteriosclerosis or marked hypertension, are advanced as factors. Defect of the internal elastic lamina was found in the wall of the aneurysmal sac by Karmally and Manohar.[6] Syphilis, strangely, is practically never the cause of cerebral aneurysm though it causes 96.2 per cent of aortic aneurysms (Fernsides).[9] Ohler and Hurwitz[9] reported twenty-four cases of spontaneous subarachnoid hemorrhage in all of which the blood and spinal fluid returned negative Wassermann reactions.

Ayer[1] makes out a good case for special structural and mechanical factors operative in the circle of Willis as most frequent causes. He mentions, too, the possible role of previous trauma.

Of the importance of the condition it suffices to say that it constitutes one-fifteenth of all cerebral vascular accidents (including hemorrhage and thrombosis) and its incidence is about that of subacute bacterial endocarditis.[8] It has been confused with diabetic and uremic coma.

CONCLUSIONS

1. A case of so-called spontaneous subarachnoid hemorrhage is reported in a white male of twenty-eight years. The patient in addition to the sudden precipitate onset, meningeal syndrome and bloody spinal fluid, had a hemiparesis[4] and an aphasia[10] from which he recovered, only to develop a psychosis some eight or ten weeks after the initial onset.[5]

2. It is known that more than one vascular accident is frequent, and there is presumptive evidence that this patient had a previous attack in August, 1937.

3. In view of the opinion of at least one informed observer[1] on the roll of antecedent, though remote, trauma, the question of the importance, if any, of the forceps delivery arises in this case.

4. Another question that arises is:—What role, if any, did the imbibition of an half pint of whiskey daily for a year, play in the production of the hemorrhage? Was the use of alcohol symptomatic of un-

derlying cerebral difficulty? Was it causative, or was it incidental?

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DISCUSSION

DR. O. B. DARDEN, Richmond: First of all, I wish to commend Dr. Hamlin for bringing to our attention this important subject and for his clear presentation. He has, in fact, covered the ground so well that there remains little else to be said. While he had little to say about his own part in the diagnosis in this particular instance, I think he deserves considerable credit for reaching his conclusions so readily. One patient in the series reported by Blackford was at first considered an alcoholic, but further observation revealed the actual condition. Too often we think of the alcoholic as "another drunk" and willingly let our medical curiosity about our patient dwindle to an unwholesome indifference. Alcohol may be a terrible monster, but I believe it is a bitterly maligned substance and has been indicted for many things for which it was not responsible. In this particular case the question arises as to what causal role it played in the patient's condition. It seems to me it might be thought of negatively in the same way as the essayist dismissed trauma as a causative factor. Many other conditions are found in those who drink excessively and only by a thorough diagnostic survey can these conditions be disclosed.

Spontaneous suharachnoid hemorrhage is probably not so rare as we might think. Careful investigation with the condition in mind may disclose the fact that we have been missing some that come under our observation. It would seem that local pathology from some pre-existing condition might account for some of these hemorrhages. Encephalitis or meningitis might bring about changes in the vessels themselves or in the under surface of the dura that might be conducive to hemorrhage under proper conditions. Vomiting or straining might lead to a venous congestion with subsequent increase in arterial tension sufficient to cause the rupture of a diseased vessel in the subarachnoid space. Likewise hypertension with arterial changes might be the underlying pathologic change leading to hemorrhage when additional stress or strain is placed upon the damaged arterial wall. These changes might weaken the wall as the aneurysms emphasized by Dr. Hamlin.

As to treatment, I believe everybody is agreed upon the efficacy of repeated spinal punctures for relief of mechanical pressure and meningeal irritation. A fifty per cent solution of glucose might be used at times to lower spinal fluid pressure. A note of warning should be given here, however, as to the danger of too rapidly lowering spinal fluid pressure. It seems that it would be possible to facilitate bleeding by a too rapid and too profound lowering of pressure, particularly in the early stages. The diagnostic and the therapeutic value, however, demand it. Caution should be used. Ice caps to the head and sedatives might be of some benefit in the relief of headache and restlessness.

DR. HAMLIN, closing the discussion: In five thousand and some odd head autopsies at the London Hospital one in every 125 had intracranial aneurysms. We know that syphilis causes about 96 per cent of thoracic and aortic aneurysms, but it seems never to cause intracranial aneurysms. Ohler and Hurwitz reported twenty-four cases of subarachnoid hemorrhage every one of which had negative Wassermann reactions on both the blood and spinal fluid. All of these cases of the strictly spontaneous (so-called) type of subarachnoid bleeding appear to occur in young people; the average of one series (Josephine Neal's) being twenty-seven, and in another (Symonds') thirty years of age, I think.

TREATMENT OF HEMANGIOMAS AND LYMPHANGIOMAS IN INFANTS AND CHILDREN.*

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Nevus, the broad term including most of the congenital malformations of the skin, was classified by Fraser under two distinct pathological groups. The first group included the lesions having a distinct epidermal origin such as the pigmented nevus and the pigmented nevus with hair. The second group were those of the mesodermal origin which consisted chiefly of the hemangiomas and lymphangiomas. It is this latter group with which we are concerned in this paper.

It is interesting to note that aside from their pathological characteristics these tumors also have distinct gradations of radio-sensitivity. The first group is relatively resistant, while the second group are radio-sensitive providing the treatment is given early.

It has just been mentioned that these lesions should be treated early. The appeal cannot be made too emphatically for active therapy to be started at the earliest date possible. At this stage they are the most sensitive to the radiant energies. Also in the early stage they are in their active growth period. The initial radiation applied retards the active growing elements.

Theories have been advanced regarding the etiology of hemangiomas. Prenatal influence has not been satisfactorily proven. Hereditary transmission has few enthusiasts. Lymphangiomas, particularly the hygroma type, arise from "lymphatic rests or remnants of the primitive jugular sacs, and lymph vessels are formed without sufficient communication with the larger vessels in the particular area involved. Later this gives rise to large cystic lymph tumors."

From the pathologic-anatomical viewpoint there are gradations of radio-sensitivity within the group of mesodermal lesions. This sensitivity varies directly with the age and duration of the lesion. In turn, the cosmetic end result varies with the time element involved.

The "capillary form" or port wine hemangioma histologically presents a picture of a closely lying network of capillaries which are made up of well differentiated endothelium bound together by a light connective tissue stroma. They are situated in the superficial layers of the skin, most usually flat and

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Case 1. Fig. 1.—Multiple lesions on back, scalp and arm. Child four months old when first seen. Lesions first noted at two weeks of age.
Fig. 2.—Radium treatment given between April, 1935, and November, 1936. Hair in scalp was destroyed before treatment was started. Scars now soft and pliable.
Fig. 3.—Hemangioma on arm is practically normal.
Fig. 4.—Hemangiomas on back have practically disappeared.

flush with the surrounding skin. Most of them occur on the head or neck and remain fairly unilateral, rarely crossing the midline. They are covered with a thin layer of epithelium and have within them little or no hair. Because of the thin tissue covering, the red-violet color is produced by the closely developed vascular channels. Pressure over this area produces a blanching.

There is another form of capillary hemangioma in this group, much less pronounced in its characteristics. It apparently arises from a central capillary with stellate and serpentine branches extending outward. They seldom progress beyond their initial stage, and for that reason may not have to be treated. These are more common at birth.

The capillary hemangiomas or port wine stain are the most difficult to treat from the radiological aspect. If treated in the first year of life the radiation response may be good and a cosmetic result of a pleasing effect may be obtained. Beyond the first year of life they are radio-resistant. Their size also

Case 2. Fig. 1.—An untreated hemangioma on the scalp which became infected. There is no hair in the lesion.
Fig. 2.—After roentgen irradiation the infection and lesion subsided, leaving a soft smooth scar.

influences the end result. Usually they are too large to employ a single radium applicator necessitating the division of the lesion into zones for therapy. In this case, despite due care, unevenness in the end result is apt to occur. Then, too, the underlying telangiectasia, not altogether visible in the early stage, may become pronounced, although not amplified, when the primary color is beginning to fade.

The cavernous form of hemangioma or ordinary strawberry type of birthmark is not usually noticed at birth, appearing more often about one to six weeks after birth. It starts as a small red-violet skin blemish and grows rapidly in the first few months. The lesions are variously elevated above the surrounding skin, covered by a thin layer of epidermis, and may or may not be lacking in hair or hair follicles. In the early stage of development those on the scalp normally contain a normal amount of hair. The deeper situated type is covered by more or less normal skin with little difference in color.

Case 3. Fig. 1.—Child fourteen months old with a hemangioma involving the mucous membrane of the lip. Treatment without danger of infection must be used here.
Fig. 2.—After six radium treatments between April, 1936, and March, 1937, there has been marked improvement which would have been better if the treatment had been given earlier.

Histologically the cavernous hemangioma is of two types, the superficial and the deep. Both are structurally alike, consisting of blood spaces lined with endothelium more or less embryonic in character, some of which show mitotic figures. The vascular spaces are supported by varying amounts of connective tissue elements, chiefly fibrous tissue. The form of radiant energy in this group varies with the lesion. As a rule radium rays are most applicable to the superficial variety. The deep respond to roentgen rays, followed, if necessary, by radium.

In the former their accessability makes them amenable to the lighter filtered small doses of radium. The latter group requires more penetrability; therefore, filtered roentgen rays and more heavily filtered radium rays are required. In either instance the sooner the treatment can be started the more certain is the final result, effectually and cosmetically.

Lymphangiomas are similar in character to the cavernous hemagioma both histologically and in other characteristics. They are usually found, at birth and increase slowly in size. These, like the cavernous hemangioma, respond to the radiant en-

ergies. The size, location and character of the lesions determine the type of irradiation to be employed. Like hemangiomas, treatment must be started early.

The sclerotics, such as alcohol, boiling water, formalin and the various chemicals, the application of carbon dioxide snow, or the coagulation by diathermy are other methods which may be used in treatment. Associated with these are the uncertainty

Case 4. Fig. 1.—Hemangioma on left wrist first noticed at three weeks of age. Treatment started at three months of age.
Fig. 2.—After X-ray treatments followed by radium, lesion practically gone in fifteen months.

of a good cosmetic result and the danger of infection. There is also a certain amount of pain. In some fairly small, markedly elevated and well circumscribed lesions, surgery is the procedure of choice.

The effect of radiation on these structures first causes a cessation in the active growth characteristics of the tumor. This is followed by a change in the color of the lesion. The red-violet hue becomes a dull flat blue .

The change in color is due to the effect of irradiation on the vascular elements. The endothelial lining of the blood vessels becomes vascularized and degenerated. There is an infiltration of leucocytes in the vessel walls with ultimate stenosis of the vessel lumen. The tumor mass gradually begins to subside. This is slow in the beginning. There follows a persistent progressive replacement by apparently normal tissue in the involved area. By employing moderate doses of the radiant rays no marked irradiation reaction or damage to the surrounding structure occurs and the danger of untoward reactions is minimized.

The length of time for the final result is dependent upon:

1. The age of the lesion to be treated, and

2. Its size, location and the extent of its invasion in the surrounding tissue. A small lesion on a few weeks old infant is more susceptible to irradiation than the same type of lesion on a child several years older.

The size of the lesion determines to some extent the time required for its subsidence. The large lesion offers more difficulty in treatment because of the danger of ulceration. Being large, the overlying skin is thin and subject to trauma. Damage to the surface is frequently followed by infection. Infection, however, is no contraindication to irradiation treatment.

There is no danger in early and active therapeutic measures. Dangers do occur in inactivity. The possibility of trauma and infection is always present in the untreated lesion on small children. Also, in postponing the treatment to a later date, with the hope in the meantime that the child might "outgrow" the condition, there is always the strong probability that it will continue to grow, producing a more serious

Case 5. Fig. 1.—Child three months old; duration of hemagioma eleven weeks.
Fig. 2.—After radium treatments between June, 1935, and March, 1937, lesion faded and regressed. Child now three and a half years old; no distortion around eye.

physical and cosmetic handicap. Then there is the danger that a small number of these may be malignant from the beginning, or, if left untreated, may assume sarcomatous characteristics later in life.

Birthmarks in the early stage of development on the scalp or hair growing areas can usually be removed without damage to the hair follicles. As a rule late lesions have already destroyed the follicles before they are seen by the radiologist. In this stage if the follicles have not already been destroyed the larger doses of radium or X-rays that are necessary to eradicate the growth will also produce a perman-

ent destruction of the hair follicles, leaving a bald spot.

Radium and X-rays exert their influence without sensation or pain. All of our cases have been treated by the use of the radium plaque or by the heavily filtered X-rays. This is carried out as an office procedure requiring only short treatment periods several weeks apart. In other words, the treatment is ambulatory in nature, requiring no hospitalization. We do not advocate, except under unusual circumstances, the insertion of radium needles or capsules into the tumor mass. This is not without a certain amount of danger. It also requires hospitalization under close supervision.

CONCLUSIONS

1—A brief description of the various types of vascular tumors has been presented.

2—Our results have shown that early application of roentgen rays and radium offer a quicker and a more pleasing cosmetic result. From experience we know that this is best obtained if the child is treated in the first few weeks or months.

3—Early irradiation causes an immediate cessation in the growth characteristics of the lesion and gradual regression of its abnormal size and color.

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DISCUSSION

DR. VINCENT W. ARCHER, University: As usual, anything coming from Dr. Hodges, Dr. Snead, and Dr. Berger, is well worth listening to, and there is very little to add to their paper.

There are a few points which might be stressed—first, the matter of diagnosis, particularly in lymphangiomas. In lymphangimoa there is a mass. But not all masses in children are benign. We have been struck by this because in the last two years we have had two cases with puzzling diagnostic features—one was endothelioma; the second was lymphosarcoma. Both of these terminated fatally. It is important, therefore, to bear in mind the possibility of malignant growth in all cervical masses in children—they may not be benign.

Another thing that might be stressed in lymphangioma is that there are two types: one is solid, the other is cystic. I had the opportunity of getting a kind of preview of this paper in Atlantic City, and it was brought out in the discussion that the cystic does not respond to radium or roentgen treatment, whereas the solid does respond nicely.

(At this point, Dr. Archer showed a number of interesting slides illustrating the treatment of lymphangiomas and hemangiomas in the University of Virginia Hospital).

DR. FRED M. HODGES, Richmond: I simply want to strongly emphasize three or four points that have been brought out by the two previous speakers. Practically all strawberry type hemangiomas begin as tiny lesions. They are usually noticed when they are one, two, or three millimeters in diameter. In these cases good results should be gotten in practically every instance. We get histories in which a child one to six weeks of age will show a little red spot. The most important thing of all for the profession to realize is that these cases should not wait. Frequently the family physician—and sometimes even pediatricians—will tell them to wait, that the child can be treated more easily when it is a little older. A child can be treated at ten weeks just as easily as at ten years of age. These lesions are radio-sensitive when a child is young, and become more and more radio-resistant as the child becomes older; not only does the treatment involve a larger area, but this area becomes radio-resistant as the child grows older.

The same thing is true of keloids. As you know, excellent results can be obtained in a young keloid, while an old keloid is radio-resistant.

In cystic-hygromas of the neck X-ray examination should be made of the chest. Some of them may have extension into the mediastinum.

In lymphangiomas made up of large single cysts they are not radio-sensitive, and if possible should be removed by surgery. All others should be treated by either X-ray or radium, since a large majority of them are radio-sensitive, and good results can be obtained.

DR. D. M. FAULKNER, Richmond: May I ask a question? Of how much value is irradiation in the deep cavernous angiomas in the leg?

DR. BERGER, closing the discussion: We purposely left out hemangiomas which occur in bone and elsewhere, and included only those which appear on the skin. Hemangiomas do occur in the spine and long bones, liver, and elsewhere. I am not so familiar with hemangiomas occurring in the long bone, but I have had some experience with them in the spine. These people go on without symptoms for a long time, and usually when they are about twenty-six they begin to have backache. Treatment of hemangiomas of the vertebral body by X-ray has given marked relief of pain and symptoms.

I certainly want to thank Dr. Archer and the other discussers.

A CASE OF STREPTOCOCCUS MENINGITIS OF OTOGENIC ORIGIN WITH RECOVERY.*

ALLEN T. HAWTHORNE, M.D.
Winchester, Virginia.

My purpose in bringing to you a paper on this subject is prompted by the following reasons. First, up until a year or so ago, cases of streptococcus meningitis were practically always fatal. To make the diagnosis of this condition was practically equivalent to giving a hopeless prognosis. Second, although cases of recovery from streptococcus meningitis are now being rather frequently observed and reported, I feel that they still are of enough importance and interest to warrant reporting.

Needless to say the marked advance in our method of treatment of these cases, and the results obtained, have been brought about by the introduction to the profession of sulfanilamide. This drug, which is chemically para aminobenzenesulfonamide, was used in Europe under various trade names prior to its introduction in this country as prontylin. During the past eighteen months this drug has been used to treat various types of infection, and with good results in selected cases, but the most startling results have been obtained in infections due to the streptococcus, particularly the hemolytic type. So outstanding, and well-nigh miraculous, have been some of the results obtained, that we almost necessarily feel that the introduction of sulfanilamide marks one of the outstanding advances in modern therapeutics. The great danger lies in the fact that its universal, and often indiscriminate, use may lead to so many failures and highly undesirable results that a really worth-while drug may fall into disrepute.

To illustrate the great efficiency and value of this drug, when used in the proper type of infection, I present the following case of streptococcus meningitis of otogenic origin in which complete recovery resulted after the use of sulfanilamide.

REPORT OF CASE

W.B., male child, age eight, was seen for the first time in my office, at 3:00 P. M. on February 9, 1938. The mother of the child gave the following history: One year ago the child had a bilateral purulent otitis media. After treatment, for several weeks, by the attending physician, both ears cleared up and remained dry until the present illness began. Last summer a tonsillectomy and adenoidectomy was done with the hope that further otitis would be prevented. Aside from this, there was nothing of importance in the past history.

Four weeks prior to February 9, the child developed an acute otitis media bilateral. The drums were allowed to rupture, and the ears discharged for several days before a physician was consulted. When finally the child was taken to a physician, ear irrigations were instituted. After one week, the left ear became dry and has remained so since. The right ear continued to drain profusely. At times the child would complain of some pain in the vicinity of the right ear, and in the right temporal region. At no time was there any chill, nausea, or vomiting. The majority of the time the child had continued to attend school, but there were times when the child was listless, refusing to play or to take nourishment well. On these occasions, he was kept from school.

My first examination was rather superficial. The child did not appear to be acutely ill. He was fairly alert, but somewhat cross and resentful while the ear was being examined. The right ear was draining profusely. There was no foul odor to the discharge. A smear taken from the ear showed short chain streptococci. There was no sagging of the posterior-superior canal wall. A satisfactory view of the drum could not be obtained. There was no swelling or tenderness over the mastoid, but there was some tenderness above and in front of the ear on deep pressure. The left ear and mastoid were negative except for scarring of drum. The throat was negative. There was a slight nasal discharge both anteriorly and posteriorly. No stiffness of the neck was evident at this time.

I put the child on sulfanilamide gr. V, q.4h, and told the mother to continue irrigating the ear until the next day, when the child was to be taken to the hospital for X-ray examination. At 6:00 A. M. the following day the father called to say that the child had been very ill all night. The temperature had been high, the child had been delirious, and there

*Read at the meeting of the Virginia Society of Oto-Laryngology and Ophthalmology in Williamsburg, May, 1938.

had been nausea and vomiting. The child also had complained of severe headache. The child was admitted to the hospital at 8:00 A. M., and X-rays of the right mastoid were taken before I saw him. The picture showed an acute mastoid with definite destruction of all cells. The temperature was 105, pulse 140, and respiration 30. The general appearance of the child suggested a meningitis. At this time I requested Dr. T. A. Gibson, head of the Department of Pediatrics, to see the child. During the remainder of the time that the patient was in the hospital, he was practically entirely under the care and treatment of Dr. Gibson, and to him I give full credit for the satisfactory results obtained. Dr. Gibson's findings were as follows:

W.B., a well nourished, well developed male child of eight years was admitted to the children's ward of the Winchester Memorial Hospital, February 10, 1938. The child apeared gravely ill with anxious facial expression. He lay on his right side with knees and thighs flexed and neck hyperextended to a moderate degree. The skin was smooth, dry, and displayed no evidence of rash. The lungs were physiologic throughout. There was no evidence of cardiac enlargement. The heart action was rapid, but there were no murmurs or arrhythmias elicited. The abdomen was moderately distended; no areas of tenderness; no rigidity; and no palpable masses. The liver was not enlarged, and the spleen not palpable. The tongue was slightly coated. There were no carious teeth. The throat was reddened to a minor degree. The right ear was draining profusely. The discharge was very thick, but odorless. There was a large perforation in the drum. There was no sagging of the posterior-superior canal wall. The mastoid was essentially negative by inspection and palpation. On deep pressure there was some tenderness above and in front of the right ear. The left ear and mastoid were negative. Externally the eyes showed no abnormality. The pupils were regular, equal, and reacted to light and accommodation. There was no strabismus nor nystagmus. The eye grounds were negative except for slight blurring of both discs. There was no cervical adenopathy. The neck rigidity was marked, and there was definite pain on flexion extending from the cervical wall into the lumbar region. The spine was also rigid. The signs of Kernig, Oppenheim, and Babinski, were bilaterally positive. All peripheral reflexes were hyperactive.

A portable flat roentgenogram of the chest failed to reveal any lung pathology. A lumbar puncture was done a few hours after admission. The fluid was under moderate pressure, and had a ground-glass appearance. The cell count was 3,600 with 86 per cent neutrophiles and 14 per cent lymphocytes. There was a trace of globulin. A Gram stain of the sediment showed the presence of a very occasional short-chained streptococcus, and a culture yielded a satisfactory growth of the same organism. The hemoglobin was 70 per cent R.B.C. 4,040,000, W.B.C. 23,000, Polys. 86 per cent, and Lymphocytes 14 per cent. The urine was amber, and alkaline. The specific gravity 1.018, trace of albumin, and no sugar. The microscopic showed two or three pus cells per high power field; one finely granular cast; one hyaline cast; and no red blood cells.

The child was immediately put on ten grains of sulfanilamide every four hours, one-quarter grain of phenobarbital twice daily, and the usual supportive measures. The following day the temperature dropped to 100 F., and the pulse to 110. The spinal fluid was clear, cell count 2,200, and continued to show the presence of a short chained streptococcus.

February 12: The general condition of the child was such that he appeared almost completely recovered. The spinal fluid contained 1,000 cells, with streptococci still present.

February 13: The spinal fluid contained 421 cells. The drainage from the ear was markedly decreased. The general condition was very satisfactory.

February 15: The spinal fluid contained 380 cells. One short chained streptococcus was seen by direct stain. There was no discharge from the ear. There was no swelling or tenderness over the mastoid region. The sulfanilamide was decreased on this date to twenty grains per day.

February 16: The child sat up in bed and complained of being hungry. There was no neck rigidity. All of the neurological signs were negative. The W.B.C. count had dropped to 11,200, with 77 per cent neutrophiles.

February 19: The spinal fluid contained ninety-six cells, and the Gram stain was negative.

February 20: The child being somewhat anemic, and also slightly blue from the sulfanilamide, 400 c.c. of citrated blood was given intravenously.

February 22: The child was discharged from the hospital on this date. He appeared to be entirely well. The ear had been dry for several days. He continued to take twenty grains of sulfanilamide a

day for the first week after discharge from the hospital, and then it was reduced to ten grains a day for another week, after which it was discontinued. He was seen at home on several occasions, and his convalescence was uneventful.

SUMMARY

1. A case of streptococcus meningitis, which under past methods of treatment would undoubtedly have resulted in death, is reported, with complete recovery following the use of sulfanilamide.

2. It is interesting to note that the child's temperature did not rise above 100 F. after the second day of hospitalization, and that the acute mastoiditis completely subsided without operative interference following sulfanilamide therapy for meningitis.

110 North Braddock Street.

CURRENT TRENDS IN THE TREATMENT OF CHRONIC ARTHRITIS.*

WM. H. HIGGINS, M.D.,
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There is probably no disease recorded in medical literature which has shown a greater resistance to scientific research than chronic rheumatism. Inaccurate classification, lack of exact knowledge of etiology and the poor results from treatment have long been discouraging factors in all efforts to conquer this malady.

When it is known, however, that there are almost three million chronic rheumatic sufferers in the United States of whom over a million have been bed ridden at one time or the other there is no greater challenge to the medical profession today. Fortunately in recent years there has been a renewed interest in solving this problem and intensive studies are now being made in practically every medical center.

As stated above, one of the discouraging factors in the past is the inaccurate classification of rheumatic diseases. We are indebted to the American Rheumatism Association for removing this handicap and in the future no discrepancies should arise. In view of the fact that 75 per cent of the chronic arthropathies are either chronic hypertrophic or atrophic arthritis, this paper will deal with a discussion of only these types.

It is now generally believed that chronic atrophic and chronic hypertrophic arthritis are distinct and independent diseases, the first being infectious in origin and the second being due to traumatic and senescent changes. It will be noted roentgenologically in chronic atrophic arthritis proliferation of synovial membrane, thickening of the joint capsule, atrophy of the bony tissues adjacent to the joint, partial destruction of the cartilage and often dislocation of the articulating bones. In the chronic hypertrophic arthritis there may be seen periarticular lipping, a narrowing of the joint spaces, an atrophy of the cancellous bone close to the joint, and Heberden's nodes around the terminal finger joints. In the atrophic spondylitis there occur irregular calcifications of the ligaments which does not usually appear in the hypertrophic type. The clinical manifesta-

*Read before the sixty-ninth annual meeting of the Medical Society of Virginia, at Danville, October 4-6, 1938.

	ATROPHIC ARTHRITIS	HYPERTROPHIC ARTHRITIS
Average age at onset	Third and four decades	Fifth and sixth decades
Weight	Normal or underweight	Usually overweight
Blood	Low hemoglobin	Normal hemoglobin
Foci of Infection	Usually present	Usually absent
Morbid anatomy (condition of bones)	Rarefaction	Condensation
Joints involved	Any joint in body	Chiefly knees and fingers
Type	Migratory or progressive	Localized
Appearance of joints	Periarticular swelling	No swelling
Special Signs	Fusiform finger joints	Heberden's nodes
Roentgen-ray	Narrowing and clouding of joint space	Lipping of bony margins
Termination	Ankylosis and deformity	No ankylosis; usually no deformity

Fig. 1.—Differential diagnosis—chronic atrophic and chronic hypertrophic arthritis.

tions of these two diseases are generally distinguished without difficulty as outlined in Fig. 1. (Cecil). Occasionally a combination of both forms will be found in the same individual.

Assuming that chronic atrophic and chronic hypertrophic arthritis are dissimilar in etiology, roentgenologic findings and clinical course, it is natural that the treatment should likewise follow divergent lines.

Therapy: There is a remarkable unanimity of opinion as to the management of chronic hypertrophic arthritis. Most observers today are in accord with Bennett and Bauer who are on record as stating that "there being no evidence favoring infectious, metabolic or endocrine theories, these patients should not be subjected to wholesale removal of foci, administration of endless sera, or vaccines, endocrine therapy, colonic irrigations, hyperpyrexia, weird dietary regimens, etc."

Given a chance nature will often repair many of the cartilage defects with fibrosis. With the knowledge that true ankylosis does not usually occur, reassurance is one of the most important features of treatment; patients must be told that a hopeless life of invalidism will not be their fate. As these arthropathies are prone to develop from trauma, occupational or otherwise, removal of this etiologic factor is imperative. Obesity being a common source of damage to the weight bearing joints should be removed by dietary measures. Bandages or splints may provide special rest for hips or knees and corsets or braces for the back. Short periods of rest are useful but the joints should be moved through their full range of motion frequently.

Physiotherapy in the form of baking and massage undoubtedly relieves much of the pain and is generally considered useful by competent observers. Aspirin has a most salutary effect on many of these patients and should be used freely when other measures fail. Not infrequently a low metabolic rate is found in this type of arthritis when thyroid administration adds much to their comfort. Although this regimen has never cured a case of chronic hypertrophic arthritis, one may expect an amelioration of symptoms and a measurable degree of comfort for the patient.

The most noteworthy advance in the understanding and treatment of this type of arthritis is away from the more highly specialized towards the simpler procedures as enumerated in the foregoing paragraph. To do more in the light of our present knowledge is without the justification or sanction of modern medicine.

The assumption that chronic atrophic arthritis has an infectious background has stimulated a keen interest in its etiology as well as its response to many therapeutic endeavors. Although the results have been largely disappointing, sufficient advance has been made to afford a better understanding of the problem as a whole. As Pemberton has put it, chronic atrophic arthritis is a systemic disease and is no more a joint disease than typhoid fever is a disease of Peyer's patches. The general breakdown often noted in these patients as shown by their loss of weight, secondary anemia, fever and other systemic disturbances bear out this assertion. Without taking into consideration the natural history of this disease and its tendency to spontaneous remissions, many enthusiastic reports have been published only to have them refuted by a more careful study of other observers. In appraising the value of certain remedies it should be remembered that "physicians also are liable to fashions" and if any inert substance is given long enough a natural remission of symptoms may occur. In the words of Hench, "one should not be mesmerized by a spa, a local focus, a diet, a drug, a vaccine, a short wave therapy or physiotherapy, neither should one be foolish enough to decry them."

Medical literature in recent years has been bombarded by such a varied assortment of baked and half baked cures for the rheumatoid individual that the practicing physician is left in a maze of doubt as to the proper method of procedure in treating his arthritic cases. The enthusiasm of both the patient and the attending physician for some favorite method has undoubtedly muddied the waters of honest endeavor. Sir William Osler once said: "In treatment the placid faith of the believer, not the fighting faith of the aggressive doubter is our besetting sin." It is the aggressive doubter who insists that the control method of investigation be used. Spontaneous remissions are not uncommon and in deciding whether or not improvement has followed a certain course of treatment such improvement to be convincing should occur shortly after treatment is instituted.

The first essential in successful treatment of the disease is early diagnosis before contractures or ankylosis have developed. When these late manifestations have occurred the patient rarely can expect

more than a reasonable degree of improvement in his condition.

Focus of Infection: The role of a focal infection in atrophic arthritis has been studied for a sufficient length of time to be considered now by most investigators as a major factor in the etiology of this disease. Its judicious removal is generally admitted as a rational therapeutic measure in all clinics. Unless, however, this operation is carried out early (3-4 months) the chances of a beneficial result are greatly lessened. It must be remembered that some foci may be merely an expression of poor health and not the cause of it. The fact that its removal is not followed by rapid improvement does not, however, invalidate the importance of its eradication. The current trend is towards a more exhaustive search of the body for definite evidence of infection although the promiscuous removal of doubtful areas is condemned. The abundance of satisfactory results often following this single procedure is conclusive proof of its efficacy.

Diet: Many dietary fads have been recommended for this disease. They have been exhaustively studied by many observers but their much vaunted claims have not been substantiated. The low carbohydrate values of Pemberton have not met with a popular response except in those cases where there has been an elevated blood sugar.

The current opinion of most rheumatologists is that although the arthritic patient still wants a special diet the disease usually does not need one. Less is being written in favor of restrictive diets and special food combinations. Halbrook and Hill state that the patient does best on that diet which would be selected by him if he had no arthritis. If the patient is underweight these authors prescribe a high caloric high vitamin diet with no limitation of starch. A daily minumum of 50-75 gm. of protein should be taken.

Vitamins: At a time when vitamins are attracting the attention of many observers it is only natural that these substances would be studied in their possible relation to the cause and cure of joint diseases. Rinehart found that vitamin C was uniformly lowered in the blood of rheumatoid as well as gonorrheal arthritic patients. Small series of these cases have been treated with this agent with favorable results but without sufficient controls and other checks to attract serious attention. The ingestion of large amounts of vitamin D (200,000 units daily) has been recommended by Fletcher who claims that this vitamin improves the tone of the colon which in turn, by improved elimination, helps in the cure of arthritis. This work has not been substantiated by others except as an aid in establishing a highly nutritious diet.

Sulphur: Cowadias noted that the urine of patients with atrophic arthritis contains excessive amounts of sulphur. It was later shown that the nail clippings of patients with this disease showed less sulphur than those of normal persons. Upon this basis numerous reports on the curative value of sulphur injections appeared in the medical literature. In none of these series were suitable controls set up or objective studies of regenerated tissues made. The period of treatment is prolonged and this gives an opportunity for spontaneous improvement. It can not, therefore, be considered a proven form of therapy.

Gold: Many papers from European Clinics have appeared recently on this method of treatment. Foerstier reported 500 cases of atrophic arthritis treated with gold injections of which 50 per cent were improved. No controls were used and such a report is of limited value. Reactions occurred in about one-half of his cases. Although many British authors are enthusiastic over its use no formal American report has been published. It may possibly have some value. The mode of action of gold in arthritis is unknown.

Bee Venom: For several generations there has been prevalent among the rural population of European writers and to a less extent in America a belief that the sting of bees is a cure for rheumatism. Many bee keepers claim that their freedom from arthritis is due to their occupation. Reports have appeared from time to time on its use and only recently 100 patients suffering from chronic atrophic arthritis were studied at the New York Hospital by Kroner *et al.* Treatment was carried out over a period of one to fourteen months with an injectable form of bee venom; seventy-three showed improvement (thirty-five were markedly improved and thirty-eight were moderately helped). No controls were studied. It would seem that bee venom is worthy of further consideration.

Foreign Protein: In a recent review of an experience of twenty years with typhoid vaccine injections Miller noted that about 40 per cent of the patients so treated had been entirely relieved of symp-

toms after receiving three to five injections given every other day. Within a month 50 per cent (of the 40 per cent) had a return of the disease and most of the remainder relapsed within a year. This has been the experience of most observers and, therefore, this method is rapidly falling into the discard.

Vaccines: After a perusal of the literature on this subject the writer finds himself in the quagmire of doubt. When it was reported a few years ago that a specific strain of streptococcus could be isolated from the blood stream of arthritic patients vaccines reached their peak of popularity. Following the failure to have this study verified by other observers the specificity of the treatment was lost. Subsequent reports on various vaccines and sera have been published with conflicting conclusions. Comparing the results from different vaccines against a control series Halbrook and Hill were unable to prove this treatment of definite value. Nevertheless they continued to use them in some cases because of the clinical impression that certain cases were helped. The more conservative devotees of this therapeutic measure believe that desensitization, not immunization, should be attempted. Reactions should be avoided. The best results apparently are from progressively smaller, not larger, doses. One is probably justified is stating that a streptococcus strain is responsible for rheumatoid arthritis. Conflicting reports on the specificity of agglutination and even skin sensitization tests of the various streptococcal types leave us in doubt as to the selection of a proper vaccine in an individual case. In spite of this contradictory evidence one does gain the impression that vaccines are sometimes helpful and should be used in selected cases as a supplement to other forms of therapy.

Physical Therapy: In the treatment of the different types of rheumatic diseases, especially atrophic arthritis, physical therapy is widely recognized as of supreme importance. There is a growing appreciation of the justification of this measure, which has been neglected in American medicine. Seventy-five per cent of arthritic patients questioned by Hench had previously consulted various cults because their physicians had given them no physiotherapy. While it is true that many of the physiotherapeutic measures thrive on the credulity of the patient and are, therefore, offensive to the physician, there are certain agents which are not without merit in these cases. Heat is helpful in proportion to the amount supplied, whether it is given by hydrotherapy or balneotherapy, local or general; the response is often gratifying and does seem to be an important agent in the management of the rheumatic patient. Diathermy has been a disappointment in the hands of many, although no control series has yet been published.

Prevention and Correction of Deformities: In a certain number of arthritic patients the prevention and correction of deformities becomes the most vital point in the management. Too often so-called cooperation between the physician and the orthopedist is merely a matter of lip service; to be successful it should be vital and continuous so long as there is reasonable hope for improvement. A point that cannot be too often emphasized is that with the combined efforts of the physician and orthopedist deformities can be prevented by early treatment or can be largely corrected once they have occurred and that functional use of deformed joints can be restored by suitable orthopedic surgical and non-surgical procedures.

Bile Salts: The most interesting observation in the line of modern treatment is the observation by Hench who reported a small series of atrophic arthritic patients who had remarkable remissions following an attack of jaundice. Although the responsible agent and the mechanism whereby it acts are as yet unknown, he believes that this phenomenon may offer the key to a hitherto unknown therapeutic achievement. Thompson and Wyatt have produced artificial jaundice by injecting a combination of bilirubin and bile salt which had an ameliorating effect on the symptoms of atrophic arthritis. Further studies along this line will be awaited with interest.

Out of this maze of widely diverging and unrelated forms of therapy it is impossible to find at this period a middle ground which is not debatable. The most important contribution arising out of the present investigations is the refutation of many unscientific claims and the establishment of certain fundamental factors in the treatment of this stuborn malady.

One may state without fear of serious criticism that the early removal of focal infection, adequate rest of the affected joint with suitable measures to prevent ankylosis, a high caloric, high vitamin diet augmented by liberal doses of vitamins C and D, the application of heat, the prevention of secondary anemia and complete elimination are the cardinal points in the management of the arthritic case. Although the writer believes that streptococcus vaccines will be ultimately discarded, they do seem to help in some

individuals and for the present should be given a trial in selected cases. The further evaluation of vaccine therapy depends largely on clinical proof based on the choice of which patient may be most likely to respond to treatment, on the preferred method of administration and on valid criteria for controlling the results. Their routine use cannot be too strongly deprecated.

The other methods enumerated in the foregoing paragraphs are experimental in nature and until more clinical evidence is available they should not be considered in the first line of attack.

The management of the chronic rheumatic patient is one of the most difficult problems in medicine. It concerns the specialist in practically every field of endeavor, but the successful results—if there are any—are due largely to the discriminating wisdom and judgment of the physician under whose care the patient places himself. To select a judicious therapeutic pathway out of the maze of conflicting theories is a task not to be lightly undertaken. The wise rheumatician is one who combines the uplifting qualities of the psychotherapeutist with the discerning intuition of the well trained family physician who wisely selects the treatment best suited for his patient.

Medical Arts Building.

DISCUSSION

DR. JULIAN M. ROBINSON, Danville: Mr. President and Members of the Society: The essayist has brought to you the fruition of an abundant experience, careful and persistent study, and a summation of the work that has been done in a most difficult subject. In his usual thorough manner, he has analyzed the question of arthritis, destroyed some of our pet theories and shot holes in the rank and file of our attack on this stubborn disease. He has cautioned you against following blindly or unthinkingly every fad that appears in literature, and has warned you of the pitfalls and by-paths along the way in the course of your treatment. To tell us what not to do and present the negative side of the picture is equally as important as it is to chart the course and note the dangers one may encounter en route.

The pictures you have just seen have served to clarify his remarks, if such a thing were needed, and bring out more forcibly the differential points between chronic atrophic and chronic hypertrophic arthritis from a radiologic standpoint. I wish to discuss briefly that portion of the paper you have just heard and seen pertaining to the treatment.

In the chronic atrophic type, a more rational therapy has developed as the result of a better understanding of the entire situation, namely: It is the patient and not just the joints which must be treated. Individualization is the keynote and an understanding is essential when one is dealing with a chronic disease requiring prolonged, constant care.

It has been most gratifying to note the added interest being shown in the handling of arthritis, as evidenced by the great increase in articles bearing on this subject in the past two years.

The work that is being done by the researchers makes illuminating reading, and the continuity of these efforts commands the admiration of all thinking men in our profession. Cases which we were wont to drop after a few weeks' treatment, because of slight or no improvement—due in part to a lack of faith—are now being treated vigorously, enthusiastically and persistently because we feel that, in the end, our efforts will result in considerable relief to the sufferer, restoration of function in a fair percentage of cases, and satisfaction to ourselves.

It is definitely established that the removal of infected foci in atrophic arthritis is most essential. It is not that this alone will bring about a cure, but it is doubtful if a cure can be affected until this is done. This should be done on the installment plan, so to speak, and peak-periods in the patient's condition should be the time of choice for this work.

I will not attempt, in the very short time allotted for this discussion, to take up all of the treatment field which has been so pertinently covered by the essayist, but I do wish to say something of the so-called newer remedies, which have been advanced recently.

First: *Vaccines.*—The stock vaccines, as popularized by Cecil and Burbank, have certainly had a place in the improvement of selected cases. On the other hand, it may be that, in the hands of conscientious physicians who examine their patients regularly and do not simply use the vaccines mechanically, the fact that a patient is to come to the office once a week for a vaccin over a long period of time—may produce its greatest benefit by keeping the patient interested in its treatment and returning to the physician regularly, where he might otherwise become dilatory. In this way the physician, if he cares to do so, has an opportunity of repeatedly examining his case and checking changes as they occur.

In regard to the autogenous vaccines: It is very well accepted that definite improvement and benefit come from the use of these, and it is felt that wherever a focus of infection is removed an autogenous vaccine, prepared from that focus, should by all means be used to eliminate the infection systemically, which might continue to produce toxins, in spite of the removal of the focus, unless a vaccine is used.

Second: *Intravenous Medication.*—The combination of arsenic and vaccine intravenously, as practiced by Wheeldon, has shown a decided improvement over the use of vaccine alone; and the use of arsenic intravenously in the non-syphilitic arthritic patients is becoming accepted more and more.

The use of sulphur, at first used empirically, is now coming to have a definite place, as it is felt that sufficient research has been done by several writers to indicate that there is a definite sulphur deficiency in the cartilage of the

joints in arthritis; that the joints which have a sulphur deficiency seem to have a predilection to changes, as a result of infection, trauma, dietary indiscretions, etc., which the normal joints would not have. This is determined by examination of the finger nails, the sulphur content of which should run normally from 11 to 13 per cent.

The formation of histamine which, as you know, is most toxic, is the result of a change in the protein metabolism. Sulphur combines with this toxic product and it is eliminated. A low cystin content of the finger nails would seem to indicate that sulphur has been utilized somewhere else; that, if after an exhibition of colloidal sulphur the cystin content in the nails is increased, it is evident that normal body sulphur is no longer being diverted.

The use of gold has been recently discussed quite freely by Albert Key at the meeting of the American Society for the Study of Arthritis in San Francisco and he feels that, while the product is a dangerous one if handled indiscriminately, it can be safely handled by those who are acquainted with this type of medication and that he gets probably at least 40 per cent improvement in cases which have not responded to other forms of therapy.

Third: *Vitamins.*—The use of vitamins has been very incompletely investigated, but it is becoming to be accepted that the use of vitamin D is beneficial. It is felt that, if vitamin D is given, the use of small amounts is of no value; that at the beginning of treatment patients should receive from 150,000 to 300,000 units per day for a period of two to four weeks, and this is then to be gradually reduced at the discretion of the physician. At the present time, the use of vitamin D has been hampered by its expense, and it is felt, by the man doing the most work on this subject, that the synthetic preparation does not compare to the natural one.

Fourth: *Induced Fever.*—This method, which has gained great popularity, probably because of its spectacular effect on the patient, produces temporary improvement in some cases, but this type of treatment is rigorous and dangerous, must be carried out in a department fully equipped to carry on such treatment—as the patient must be hospitalized—and has little place in the armamentarium of the general physician.

Fifth: *Induced Jaundice.*—Thompson and Wyatt, in an article in the *Journal of the A. M. A.*, October, 1937, gave a résumé of thirty-five cases of chronic atrophic arthritis treated by this method of hyperbilirubinemia and summarized their results as follows:

"It was found that the administration of bile salt alone was without beneficial effects on the symptoms of chronic atrophic arthritis. Bilirubin employed alone similarly did not give any beneficial effects. However, the combination of bilirubin and bile salt had an ameliorating effect on the symptoms of atrophic arthritis."

Hench reports that 37 per cent of thirty-one cases treated were markedly but incompletely relieved, the average remission of symptoms lasting about four months. The method at present is apparently in an investigative stage.

The use of psycho-therapy in the treatment of arthritis to improve the depressed condition, which practically all of these patients have, as result of their long continued illness and their despondence from incomplete treatment, is being most carefully considered by Swaim, of Boston, who has gone so far—at least privately—as to have expressed the opinion that the interest of patients in such activities as the Oxford Movement has afforded him the opportunity to extravert the patient and thereby get him to carry on a more rational routine.

In brief, the treatment of this condition consists of attacks from many angles and must be based on common sense and appreciation of the fact that this is not a joint disease alone. We must be careful to evaluate the numerous remedies that are being brought forward and utilize only those which have been proven by time and results to have some merit.

I hope our learned reader of the paper, you have just heard, will continue in the role of guide and moderator, lest in our enthusiasm we lose our perspective and forget that the background of these joints is a human being who must be protected and preserved.

DR. HIGGINS, closing the discussion: There are just three points which I should like to emphasize, which I did not have time for in reading the paper.

As we know, every doctor now is more or less vitamin-conscious, and we really have a feeling of optimism that vitamins will do things when everything else has failed. Attention was called to the work, first, of Rinehart, who found that there was actually a deficiency of vitamin C in the blood of these cases of atrophic arthritis; and in a small series of cases given vitamin C he did find some improvement. There was no control for this series, and as yet there has certainly not been enough work done to launch out on vitamin C as one of the major factors.

Fletcher, I think, advanced the theory of vitamin D in arthritis. His theory is a peculiar one. He believed that massive doses, anywhere from 150,000 units up to 300,000 units a day, would improve the tone of the colon, and in that way would improve elimination. There has been no proof that the colon is the real cause of atrophic arthritis, so there is no ground for basing the treatment on the improvement of the colon. Though massive doses of vitamin D may be helpful in improving the general condition of the patient, yet I feel that we cannot base our treatment upon this.

The work of Thompson and Wyatt has been extremely interesting, and they may hold the key to a puzzle that has baffled the profession since the beginning of time. You know Hench was the first to notice that in some of his cases in which a spontaneous attack of jaundice occurred the symptoms cleared up sometimes for a period of weeks or sometimes for several months. Thompson and Wyatt, in their experimental work, have been able, by the injection of bilirubin and bile salts, to precipitate an attack of jaundice and have used this in the management of their cases. It is possible there is something in store for use in this procedure. Certainly it has not as yet reached the point where you may go ahead and safely use any of these bile-salt preparations at the present time.

Now, as to vaccines. We have gone through the whole

gamut of studies in regard to vaccines. A few years back, when some of these organisms were isolated from the blood stream, it was felt that we had a specific therapy for arthritis. Unfortunately this work has not been verified, nor has the treatment measured up to our expectations. We cannot therefore say that vaccine therapy is one of the major treatments; but even such men as Hill and others working with him, who ran control tests, using these various vaccines along with inert substances, although unable to prove that any type of vaccine was any more helpful than others, yet were able to prove the fact that there were certain cases in the series that were undoubtedly improved by vaccine.

It is my hope and belief that, possibly through some form of chemistry, we shall probably be able to solve what up to the present time is extremely confusing.

Most observers today are in accord with Bennett and Bauer, who are on record as stating that "There being no evidence favoring infectious, metabolic, or endocrine theories, these patients should not be subjected to wholesale removal of foci, administration of endless sera, or vaccines, endocrine therapy, colonic irrigations, hyperpyrexia, weird dietary regimens, etc."

Sir William Osler once said: "In treatment the placid faith of the believer, not the fighting faith of the aggressive doubter, is our besetting sin."

I am very much indebted to Dr. Julian Robinson for his excellent discussion of this subject.

THE MANAGEMENT OF ORGANIC FOREIGN BODIES IN THE TRACHEA AND BRONCHI OF CHILDREN—ILLUSTRATED WITH LANTERN SLIDES.*

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A survey of the foreign bodies which have been removed from the larynx, trachea and bronchi of children admitted to the Gill Memorial Eye, Ear, and Throat Hospital during the past ten years reveals that in thirty-six instances the foreign body was of organic nature. The following types were represented:

Peanuts	16
Walnuts	6
Corn	6
Beans	3
Chestnuts	2
Apple	1
Particle of cocoanut	1
Watermelon seed	1

This number of cases is small in comparison with the numbers which have been reported from the larger bronchoscopic clinics in this country; however, we feel that the data which we have accumulated in the study of these cases will prove of importance to the general practitioner and will contribute something to the bronchoscopist in the management of these difficult cases. It is my purpose to stress the importance of considering every case of organic foreign body in the bronchus of a child as a potential death. With this thought in mind, only the experienced bronchoscopist with a well regulated team should assume this responsibility.

*Read before the Virginia Society of Otolaryngology and Ophthalmology, at Williamsburg, Va., May 21, 1938.

AGES

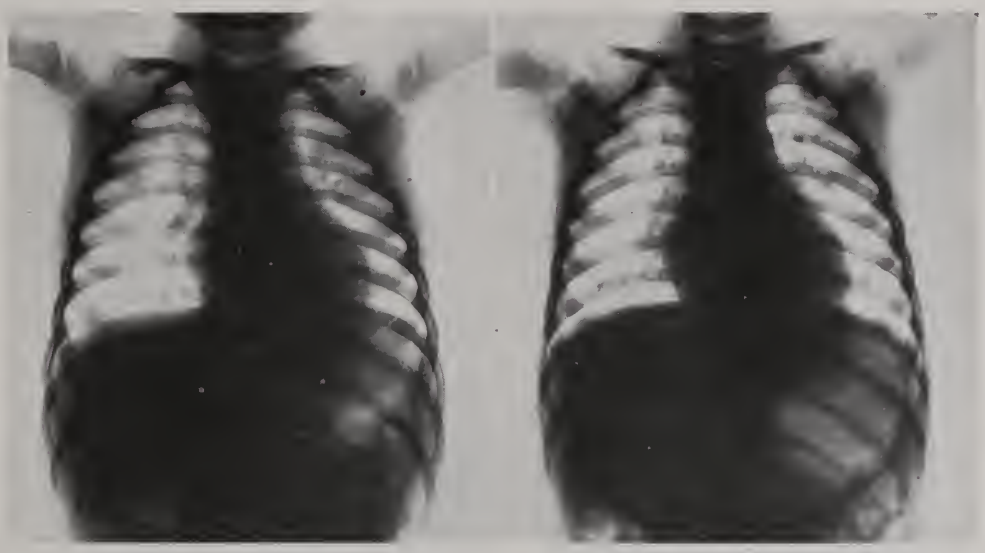
A survey of the ages of our patients shows that the average age was two years and four months, the youngest child aged seven months, the oldest eleven years. It is obvious from the ages given that all the accidents were preventable if it were not for careless parents or attendants allowing children of this age to have objects which may be aspirated. The history of foreign body aspiration was positive in thirty-five cases, being negative in only one. In a number of instances, however, the mother's history of foreign body aspiration was disregarded by the attending physician and the children were treated for various conditions, including pneumonia, bronchitis and asthma. The only death in this series of cases was a child, aged two years, whose parent's history of foreign body aspiration was disregarded and after three months of treatment for various conditions of the chest, the child was admitted to the hospital in a moribund condition and died in a short time from general sepsis subsequent to lung abscess. Specific mention and emphasis is given to this case to impress upon the physician in charge the utmost importance of securing a careful history in the case of every child coming under his care who has an unexplained cough and irregular but persistent elevation of temperature. In the absence of definite history, if signs and symptoms are at all suspicious, particularly in the presence of persistent

Case No.	Age Sex	F. B.	Location	Nature of Accident	Symptoms	Sojourn	Treatment	Results	X-ray	Name Date
15	4 yr. M	Grain of corn	Rt. main bronchus	Aspirated while eating	Coughing	5 days	F. B. removed with bronchoscopic forceps. Ether anes.	Recovery	Yes	P. L. 1-4-27
16	3 yr. M	Grain of corn	Rt. main bronchus	Aspirated while eating	Coughing	5 days	Bronchoscope introduced into right bronchus and grain of corn removed. On following day tracheotomy for dyspnea	Recovery	Yes	T. R. 3-14-27
20	13 mo. F	Bean	Right bronchus	Aspirated while playing	Coughing, choking, strangling immediately	2 days	Bronchoscopic removal. Tracheotomy for relief of dyspnea and removal of secretions	Recovery	Yes	E. S. 6-4-27
30	14 mo. F	Peanut	Right bronchus	Choked while eating	Cough spasms	3 days	Coughed up after discharged	Recovery	Yes	Morris
37	4 yr. M	Grain of red corn	Rt. main bronchus	Aspirated	Choking, coughing	36 hrs.	Removal	Recovery	Yes	D. W. 5-14-29
41	6 yr. F	Watermelon seed	Rt. main bronchus	Aspirated while eating	Choking, dyspnea at start, since then occasional spells of coughing	8 days	Coughed up and swallowed	Recovery	Yes	M. L. 7-18-29
42	19 mo. M	Husk of peanut	Left main bronchus	Aspirated while eating	Coughing, choking	7 days	Bronchoscopic removal tracheotomy	Recovery	Yes	J. T. 7-18-29
43	2 yr. M	Peanut	Left bronchus	Aspirated while playing	Coughing spells, nausea, cyanosis	3 mo.	Aspirated pus by bronchoscope tracheotomy, thoraceotomy	Death 10 days after admission sepsis	Yes	R. J. 7-18-29
49	16 mo. M	Grain of corn	Trachea	Aspirated	Coughing, choking	5 hrs.	Tracheotomy performed dyspnea	Removal	No	W. M. 12-15-29
62	2 yr. F	Grain of corn	Trachea	Aspirated while eating corn on cob	Coughing, strangling	8 hrs.	Tracheotomy dyspnea and cyanosis	Recovery Corn expelled through tracheotomy wound	Yes	S. E. B. 8-21-30
67	2 yr. M	Chestnut	Rt. main bronchus	Aspirated while eating		10 days	Bronchoscopy tracheotomy dyspnea and cyanosis	Removal recovery	Yes	D. B. W. 10-27-30
69	2 yr. M	Bean	Trachea	Aspirated while playing	Coughing, choking	3 hrs.	Tracheotomy (emergency) dyspnea and cyanosis	Recovery	No	B. P. 11-29-30

Case No.	Age Sex	F. B.	Location	Nature of Accident	Symptoms	Sojourn	Treatment	Results	X-ray	Name Date
81	3 yr. M	Portion of peanut	Left main bronchus	Aspirated while eating	Coughing, choking, dyspnea	48 hrs.	Bronchoscopy trache-otomy	Recovery	Yes	D. W. 7-19-31
82	7 yr. M	Twig of cedar shrub	Larynx	Aspirated while playing	Coughing, choking	Few hours	Removal	Recovery	No	E. L. 7-31-31
95	19 mo. M	Portion of peanut	Bronchus	Aspirated while eating	Coughing, wheezing at times	24 hrs.	Palliative	Recovery	Yes	F. T. P. 3-3-32
107	18 mo. M	Portion of walnut shell	Left main bronchus	Aspirated while eating	Coughing and wheez-ing	24 hrs.	Bronchoscopy	Recovery	Yes	R. L. C. 12-29-32
112	2 yr. M	Peanut	Rt. main bronchus	Aspirated while eating peanuts	Choking, dyspnea, coughing, wheezing	12 hrs.	Bronchoscopy	Removal	Yes	D. S. 4-19-33
114	2 yr. M	Portion of walnut	Left bronchus	Aspirated while eating	Choking and coughing	1 week	Bronchoscopy and tracheotomy	Expelled through tracheotomy tube	Yes	L. R. 6-24-33
117	5 yr. M	Peanut	Left bronchus	Aspirated while eating	Wheezy breathing	6 days	Bronchoscopy	Removal recovery	Yes	S. T. 8-14-33
119	2 yr. M	Piece of chestnut	Rt. main bronchus	Aspirated while eating	Choking and coughing	48 hrs.	Bronchoscopy	Recovery	Yes	J. F. W. 10-5-33
120	3 yr. M	Piece of apple	Left main bronchus	Aspirated while eating	Difficulty in breathing	6 hrs	Bronchoscopy	Recovery	Yes	J. P. M. 12-2-33
125	18 mo. M	Half of peanut	Lower rt. main bronchus	Aspirated while eating peanuts	Coughing, choking, wheezing and restless-ness	6½ hrs.	Bronchoscopy	Removal	Yes	G. M. 2-10-34
130	2 yr.	Piece of peanut	Right bronchus	Aspirated while eating	Choking and coughing	2 mo.	Bronchoscopy	Removal and granulations	Yes	M. H. 6-13-34
133	42 yr. F	Piece of wheat bread	Between base of tongue and epiglottis left side	Swallowed while eating	Difficulty in swallow-ing	24 hrs.	Removal	Recovery	No	Mrs.C.C. 6-29-34
138	18 mo. F	Whole grain of corn	Rt. main bronchus	Aspirated while playing	Choking and wheezing	6 hrs.	Bronchoscopy	Removal	Yes	P. H. 9-20-34

Case No.	Age Sex	F. B.	Location	Nature of Accident	Symptoms	Sojourn	Treatment	Results	X-ray	Name Date
142	16 mo. M	Pinto bean	Upper bronchus at bifocation	Aspirated while playing	Choking, dyspnea, followed by wheezing and hoarseness	4 hrs.	Bronchoscopy	Removal	Yes	L. K. 11-24-34
154	2 yr. F	Piece of cocoanut	Right inf. lobe of bronchus	Aspirated while eating	Coughing, sepsis, increased respiratory rate	3 weeks	Bronchoscopy	Recovery	Yes	M. A. G. 12-28-35
161	11 yr. M	Portion of peanut	Right bronchus	Aspirated while eating	Coughing and wheezing	3 weeks	None. Coughed it out	Recovery	Yes	R. E. 6-17-36
166	16 mo. M	Peanut	Left bronchus	Swallowed while eating	Wheezing and elevation of temperature	3 weeks	Bronchoscopy	Removal recovery	Yes	W. P. 11-17-36
171	2 yr. M	Piece of walnut	Right inf. bronchus	Aspirated while eating	Coughing and wheezing	5 days	Bronchoscopy	Recovery	Yes	R. F. 1-2-37
172	18 mo. F	Fragment of peanut	Left bronchus	Aspirated while eating	Difficulty in breathing	24 hrs.	Bronchoscopy and tracheotomy	Removal	Yes	L. H. 1-23-37
173	1 yr. M	Walnut hull	Trachea	Aspirated while playing	Difficulty in breathing	5 hrs.	Bronchoscopy	Removal	Yes	M. F. 3-28-37
180	2 yr. F	Peanut	Rt. main bronchus	Swallowed	Coughing, wheezing at times	4 days	Bronchoscopy	Removal	Yes	M. J. K. 8-27-37
184	2 yr. F	Piece of walnut hull	Air passages	Swallowed while eating	Hoarseness and cough	6 days	Child coughed up foreign body	Recovery	Yes	N. G. 10-14-37
185	2 yr. F	Peanut	Rt. main bronchus	Swallowed while eating	Wheezy breathing and cough for 2 days	2 days	Bronchoscopy	Removal	Yes	D. J. B. 10-16-37
190	18 mo. M	Piece of walnut	Larynx	Aspirated while eating	Difficulty in breathing	6 hrs.	Laryngoscopy	Removal recovery	No	K. L. G. 11-10-37

cough, a diagnostic bronchoscopy should be performed. It is of interest in this series of cases to note that during the past five years the sojourn of the foreign bodies has been from a few hours to one day, as compared to the overlooked and neglected cases during the previous five years. It is only fair to assume that the alertness on the part of the family physician, pediatrician and parents is due to the continual preaching of the Gospel through the medical literature by Dr. Chevalier Jackson and his students. Not infrequently, we have a patient admitted to the hospital with the following comment by the family physician, "I am referring a case of suspected foreign body in the bronchus of a child. The parents give a history of sudden choking and coughing while eating. This has been followed by persistent wheeze without a history of previous respiratory infection." Ten years ago a notation of this kind was rarely, if ever, given by the family physician



M. A. G.—Child age two years. Piece of cocoanut in right inferior lobe of bronchus.
Before operation: Note increased transparency of right lung. Right side of diaphragm down. Heart displaced to left.

M. A. G.—After operation: Heart and diaphragm in normal position. Transparency same on both sides.

ADMISSION AND SYMPTOMS

In only eight instances was there evidence of acute illness, and of this number the illness varied from slight dyspnea to cyanosis. The average pulse rate in thirty-six cases was 110, average temperature 100.6. The highest temperature was 105, with pulse rate 170, respiration eighty-eight. This was a patient aged thirteen months, with a large pento bean in the right main bronchus, of forty-eight hours' duration. In this connection it is interesting to note that the most severe reactions noted were not in the peanut cases, but in the three children with pento beans. These findings are in keeping with records of some of the larger bronchoscopic clinics where especial mention has been made of the so-called arachidic bronchitis, a name suggested by Jacob Rosenbloom, as it is the botanical name of the peanut. Jackson later gave the same name to all types of vegetable bronchitis. Hoarseness and aphonia were present in two cases, and in both instances the foreign body was in the larynx.

PHYSICAL EXAMINATION

In establishing the diagnosis of a foreign body in the bronchus, next in importance to a positive history are the physical signs. Unless the attending physician is familiar with the changes produced by a foreign body in the bronchi, his physical interpretation oftentimes will be misleading. The three signs most frequently found are as follows:

1. Unilateral limitation of expansion of the lung and chest on the affected side.

2. Hyperresonance on percussion. This often is present in cases of obstructive emphysema.

3. Diminution or total absence of breath sounds. These signs may vary from day to day, depending upon the amount of swelling and reaction and also upon the size of the foreign body.

In our series of cases the chest symptoms were negative in five instances, coarse rales present in fifteen, atelectasis was recorded in eight cases, and obstructive emphysema in seven cases.

X-RAY FINDINGS

Routine X-ray and fluoroscopic studies were made in all instances. When positive, together with positive history and physical findings, the diagnostic picture is complete; however, a positive or negative X-ray finding should never be the sole determining factor in establishing a diagnosis. An experienced roentgenologist working in connection with a diagnostician constitute a valuable aid. Suffice it to say that X-ray and fluoroscopic findings may change from day to day as do the physical signs. In passing, emphasis should be given to obtaining an X-ray picture after bronchoscopic removal, as there is always a possibility of fragments of foreign bodies remaining or pathology produced by instrumentation.

P. M.—Baby age ten months. Small rock in right main bronchus. Observe increased transparency on right side. Right diaphragm down, heart displaced to left side.

P. M.—After operation: Same patient after bronchoscopy. Heart, lungs and diaphragm in normal position.

TREATMENT

The only treatment for foreign bodies of any type in the bronchus is bronchoscopy. In this series of thirty-six cases, four were coughed out, three during the period of bronchoscopic study, and one three weeks following discharge from the hospital, after a negative diagnosis had been given. This particular case illustrates the hazards in giving a negative diagnosis, and also the desirability of keeping these cases under observation for a long period of time, as Jackson has often mentioned, the period of symptomless sojourn. The post-operative treatment consists of the period of observation until the danger of subglottic edema has elapsed. Where severe tracheo-bronchitis develops, requiring tracheotomy, the treatment other than keeping the air passages clear embraces adequate intake of fluids, either intravenously or intraperitoneally if the patient refuses nourishment by mouth. In cases of streptococcus infection, sulphanilamide is of value. Whole blood transfusions are often life saving measures as the patient receives on demand that which he cannot supply for himself.

ANESTHESIA

In discussing anesthesia, a debatable question is being raised, and certainly one that has not been settled to the satisfaction of all. It was formerly the practice in our clinic to work without anesthesia, local or general, in small children. During the past six years, our position has been modified somewhat and we endeavor to secure muscular relaxation in all children. We obtained this objective by the use of sodium amytal by bowel together with ether anesthesia by the drop method. The ether is administered with *extreme caution,* and it is never given in sufficient amounts to abolish the cough reflex. It requires minute care and alertness on the part of the anesthetist to administer this type of anesthesia.

I will not go into the *pros* and *cons* of the various types of anesthesia which have been advanced, but will only give our experience. Since using ether in twenty of our cases, we have only had to perform a tracheotomy in one case following bronchoscopy. Pneumonia has not been a post-operative complication in a single case where the foreign body was successfully removed within twenty minutes working time, and there has not been a post-operative elevation of temperature of more than one degree.

In cases where dyspnea and cyanosis are marked, bronchoscopy is done without anesthesia and tracheotomy is done before the patient leaves the operating room. It has been our experience that it is better to perform the tracheotomy even though the foreign body has been successfully removed in these cases than to attempt palliative measures with the hope for improvement. It is our practice to perform the tracheotomy with the bronchoscope in place for the following reasons:

1. The patient has ample breathing space.
2. Anatomical land marks are more easily identified.
3. Ample time is given for the control of hemorrhage, thus preventing the aspiration of blood into the already inflamed bronchi.

Operative Findings

The foreign bodies in this series were located as follows:

Right main bronchus	13
Left main bronchus	6
Trachea	6
Between the vocal cords	3
Right inferior branch of bronchus	2

The local appearance of the bronchus depends largely upon the length of the sojourn of the foreign body. In only six instances was there a severe reaction characterized by laryngo-tracheo-bronchitis.

Four cases required multiple bronchoscopies, three for the removal of additional fragments, and in one instance failure to locate the foreign body at the first attempt.

Complications

Tracheo-bronchitis, which was present prior to operation, continued in six instances. Bronchopneumonia was diagnosed in two cases, and there was one death, which has already been referred to in this paper. Tracheotomy was done in nine instances. Of this number three were performed to relieve post-operative edema, five to relieve dyspnea prior to bronchoscopy or immediately following bronchoscopy, and in one instance for drainage of lung abscess. Three cases of post-operative edema occurred in twelve hours after bronchoscopy. Of the first five cases of tracheotomy prior to bronchoscopy, I feel that with our improved team work, skill, and using smaller tubes, all except one could have been handled successfully without tracheotomy.

Summary

Emphasis is again placed upon the importance of careful, well regulated team work in the management of these cases. Thirty-six cases are reported of various types of vegetable foreign bodies aspirated into the trachea and bronchi which were all removed bronchoscopically with the exception of two which were removed through the tracheotomy wound, and four were coughed out, three while the patients were undergoing bronchoscopic studies, one three weeks following discharge from the hospital after a negative diagnosis had been made.

The importance of obtaining careful history of cases of children with unexplained cough, together with the importance of X-ray and physical findings have been discussed. The debatable question of anesthesia has been brought up, and only the merits of sodium amytal and ether have been discussed. Our end-results in thirty-six cases was thirty-five recoveries and one death, which could not in any way be attributed to bronchoscopy as the child was admitted in a moribund condition, due to general sepsis secondary to lung abscess.

OBSERVATIONS ON THE THERAPEUTIC EFFECTS OF NICOTINIC ACID IN PELLAGRA AND RELATED CONDITIONS.

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For the past several years it has been well known that liver and certain of its extracts have been highly effective in the treatment of canine black-tongue and human pellagra.[1] On this basis, Elvehjem and his associates[2] isolated nicotinic acid amide from liver and showed that pure nicotinic acid would cure experimental black-tongue in dogs. Their observations were confirmed by Dann[3] and others. In a detailed report, the latter showed that nicotinic acid in doses of 1.5 mgm. per kilogram of body weight was highly curative in black-tongue and harmless by oral administration.

These publications stimulated the interest in the use of nicotinic acid for the treatment of human pellagra, and several reports have appeared from different centers indicating its highly effective nature in the treatment of this disease. Fouts[4] reported the effects produced on pellagrins following the oral administration of .5 to 1 gm. daily and observed a distinct improvement within two days after therapy was begun. Spies and his co-workers[5] reported four cases exhibiting dermatitis, glossitis and stomatitis. Within twelve hours after the intravenous administration of the drug, oral lesions were healing, and were cured in seventy-two hours. The drug was given orally in daily doses as large as 200 mgm. and from 80 to 100 mgm. in physiological saline intravenously and by hypodermoclysis. In addition, their observations were made on cases given a poor pellagra-preventing diet before and during treatment. Smith and Ruffin[6] reported a case of pellagra with anorexia, dermatitis, dementia and changes in the sebaceous glands, in which a remarkable recovery occurred after the drug was given orally, intravenously and intramuscularly, in 60 mgm. doses daily for twelve days.

All three investigators have observed some undesirable reactions from the drug characterized by generalized flushing, tingling, and itching sensations occurring usually about twenty minutes after the oral, intravenous or subcutaneous administration of doses over 200 mgm. In doses below this amount, none of the reactions occurred. No appreciable changes in the blood pressure, temperature or respiration were noted.

Additional observations on the effects of nicotinic acid are presented in the following six case reports. We are reporting in detail one case of pellagra with clinical and laboratory studies; and three other cases in summary, who showed less marked skin changes but more marked mental symptoms. In addition, two cases treated with nicotinic acid are reported in which the patients showed no mucous membrane or skin changes, but showed a psychosis in one instance associated with an over-indulgence in alcohol and in the second associated with a prolonged febrile illness.

Case 1. M. J., a twenty-year-old colored female admitted to the hospital on April 20, 1938. Occupation: household work.

This patient was in good health until September, 1937, when she began to have vomiting spells, usually at night, preceded by nausea and aggravated by all forms of meat except fish. Under medical care the frequency of the vomiting attacks became less and had completely stopped by March, 1938. During this time she found that she could tolerate meat only in the form of fish, and her diet consisted of cooked vegetables, buttermilk and an average of two small glasses of wine daily. From March to April she had an uneventful interval. About April 6, 1938, she noticed a rash breaking out on both hands between the fingers, and this spread down to the finger-tips and up to the wrists. Coincidentally she noticed a rash coming under the lower lip, her mouth corners becoming ulcerated, her tongue tender, and her throat sore. Her bowels moved two to three times daily, were watery, and at times streaked with bright red blood. The vulva and vagina became swollen and tender and she said she felt as though she had "hemorrhoids". Her appetite had been normal until the onset of the

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skin lesions, but then progressively decreased to the time of admission. There were no other pertinent symptoms and the past history was non-contributory.

Physical examination on admission revealed a thin, fairly well developed young female, about twenty years old, lying quietly in bed in some distress; but rational, cooperative and orientated. B. P. 90/50. T-P-R, 104.4-98-20. Weight 73 lbs. The scalp and cranium were normal. The pupils were equal and reacted to light and accommodation; both fundi were normal. The tongue was slightly tender and smooth around the edges but not very red, and there was a whitish deposit on the frenulum. The tonsils were markedly enlarged, cryptic and slightly reddened; and there were numerous white spots scattered over their surface and the oral mucosa. A small encrusted, dry area was present below the mid-lower lip, and the corners of the mouth were raw and cracked (Fig. 1). No bleeding from the mucous

Fig. 1.—Before treatment, April 22, 1938.

membranes was noted. The neck, heart, lungs and abdomen were normal to examination. The genitalia showed a marked swelling and redness of the vulva and vagina associated with a profuse white discharge. Rectal examination revealed no proctitis or stricture. The legs showed two small round scars with dark edges in the middle of the right anterior tibial region. On both hands was a thick, encrusted,

Fig. 2.—Before treatment, April 22, 1938.

scaly, dry, non-itching, deeply pigmented rash extending dorsally from the finger-tips to one inch above the wrists and then encircling the wrists with a sharp line of demarcation from the normal tissue, (Fig. 2). There were scattered small ulcerated areas on both lesions. Reflexes were bilaterally hyperactive, but no pathological responses were elicited. There was no lymphadenopathy.

Laboratory studies: urinalysis: 15-20 white blood cells; occasional granular casts. Blood: 2,960,000 red blood cells; 63 per cent hemoglobin; 1,800 white cells; 61 per cent polymorphonuclears, 38 per cent lymphocytes, 1 per cent monocytes. Blood chemistry: sugar 75 mgm., non-protein nitrogen 35 mgm., cholesterol 100 mgm., total protein 6.5 gm. with albumin 3.5 and globulin 3.0. Wassermann and Kline were negative. An electrocardiogram showed only a sinus tachycardia, and a tele-

roentgenogram showed a cardio-thoracic ratio of 35 per cent.

Hospital course: On April 21, 1938, she was placed on a routine general diet, ferrous sulphate, perineal compresses and started on 200 mgm. of nicotinic acid in 100 cc. of water daily. Her temperature was now 103, pulse 106. On April 22, 1938, she noticed a slight flushing forty-five minutes after the nicotinic acid which lasted for fifteen minutes, her appetite was improved and she was more alert; the temperature was 98.2, pulse 110, but no skin

Fig. 3.—After treatment, April 29, 1938. The light areas on the dorsum of the hands and wrists and around the mouth are areas of healthy new skin.

changes were noted. On April 23, 1938, the white blood count was 4,800 with 67 per cent polymorphonuclears, temperature was ninety-nine, pulse was 112, and her appetite was markedly improved. The skin lesions looked "loose", the oral mucosa was less injected and she noticed a slight flushed feeling fifteen minutes after the acid was administered which lasted for twenty minutes. On April 24, 1938, she was afebrile, the skin began "cracking and peeling" with normal skin beneath, the tongue was less red and smooth and the stomatitis was gone. On April 25, 1938, the tongue was normal except that it appeared small and pointed, the skin lesions were markedly improved and large areas could be peeled off, leaving an underlying healthy skin. Her appetite was good. The vulval lesions were markedly improved. On April 26, 1938, large amounts of loose crust had peeled, and normal skin was left in its place. The lesions around the mouth were markedly improved, and the genitalia were entirely normal. By May 3, 1938, complete healing had occurred over the hands and around the mouth. On May 9, 1938, blood chemistry studies showed the sugar to be 64 mgm., non-protein nitrogen 26 mgm., cholesterol 258 mgm., total protein 6.7 gm., with albumin 4.2 and globulin 2.5. On May 12, 1938, the red blood cells were 4,280,000; hemoglobin 85 per cent; and white blood cells 6,000 with 69 per cent polymorphonuclears. On May 13, 1938, an electrocardiogram was normal, and a teleroentgenogram showed a cardio-thoracic ratio of 39 per cent. The patient was discharged May 14, 1938, completely well. The weight was eighty-three pounds.

Case 2. Mrs. J. E., a fifty-nine-year-old white female, admitted to the hospital on March 20, 1938, with a history of having had treatment for pellagra in 1931, and now complaining of extreme nervousness, redness and roughness of the back of both hands, and diarrhea of two weeks' duration. Past history was otherwise non-contributory.

Physical examination on admission revealed an extremely nervous, anxious white female, about sixty years old, sitting up in bed rubbing her hands and crying. T-P-R, 98-100-24. Her face was flushed. Her tongue showed slight atrophy of the papillae with a marked tremor, but there was no noticeable injection. Heart, lungs and abdomen were essentially normal. The dorsum of both hands showed a dry, scaly erythema extending well above the wrists.

Laboratory studies: urinalysis: trace of albumin, occasional red blood cells and granular casts. Blood: 3,220,000 red cells; 78 per cent hemoglobin; 7,450 white cells with 70 per cent polymorphonuclears. Blood chemistry: sugar 89 mgm., non-protein nitrogen 28 mgm., total protein 6 gm., with albumin 3.7 and globulin 2.3 Kline negative. Gastric analysis without histamine revealed no free hydrochloric acid in the three specimens.

Hospital course: On April 21, 1938, she was given 200 mgm. of nicotinic acid, and this amount

was continued daily for five days. Along with this specific medication a high caloric, high vitamin diet was ordered. One arm was exposed to the sunlight for a period of three hours and the erythema on this arm became more marked than on the other. On April 24, 1938, there was no diarrhea and the patient's skin lesions were completely healed with the exception of a slight degree of scaling. She was mentally more composed and less disturbed. On April 28, 1938, she was markedly improved. The erythema was gone, leaving a dry, scaly appearance on the hands; and she signed her release and left the hospital before further observations could be made.

Case 3. Mrs. M. M., a white female aged forty-seven years, was admitted to the hospital on February 18, 1938. This patient was first seen in this hospital in June, 1934, when a diagnosis of cancer of the cervix was made and a panhysterectomy was performed. Subsequent admissions were: 1. August, 1934, for deep X-ray therapy; 2. 1935, 1936 and 1937, with a diagnosis of pellagra. The events during the interval from 1937 to the time of admission could not be elicited from the patient due to her disturbed mental state, but her sister stated that since her last discharge she had been drinking heavily of whiskey each day, and for the past two months had been getting "queer". For one week she had been under observation at the City Home, and during this time stated "that she was dead and her soul had gone to heaven". Later she stated that she was "crazy", and then developed ideas of persecution. Due to these advanced changes in her mental state, she was committed to the Eastern State Hospital for the Insane. It was thought advisable, however, that, before entering this institution, she be sent to the Memorial Hospital for X-ray studies to determine the presence of any possible metastatic brain lesions.

Family history was significant in that she had one sister with paresis and another with cancer.

Physical examination on admission revealed an elderly white female, aged forty-seven years, poorly nourished but fairly well developed, disorientated, and talking to herself, but in no apparent pain. T-P-R, 98-70-20. Blood pressure 100/80. The cranium and scalp were normal. The pupils were equal and reacted to light and accommodation. The mouth showed an absence of upper teeth, lower teeth in bad condition and a smooth tongue that was not noticeably injected. Examination of the heart revealed a slight systolic murmur over the mitral area. The abdomen was rigid, but no pathology was demonstrated. The shoulders and knees were spastic with wasting of the arms. Examination of the reflexes showed hyperactive biceps, hypoactive patellar, positive Bakinski. Gordon, Oppenheim and the addominal reflexes were absent.

Laboratory studies: urinalysis: albumin two plus; white blood cells 6-8. Blood: 3,340,000 red cells; 65 per cent hemoglobin; and 6,900 white cells with 75 per cent polymorphonuclears. Kline negative. Roentgenograms for metastasis were negative. Blood chemistry: sugar 77 mgm., non-protein nitrogen 27 mgm. Spinal fluid examination was essentially negative.

Hospital course: In spite of the fact that this patient failed to show the typical skin or mucous membrane lesions of pellagra, her psychosis and past history were very strongly suggestive of this diagnosis. On May 20, 1938, treatment was begun with 200 mgm. of nicotinic acid daily in conjunction with a high caloric, high vitamin diet. Within four days after this therapy had been instituted, her psychosis had completely disappeared. She became calm, mentally clear and cooperative. The nicotinic acid was discontinued after eight days, and it was not found necessary to repeat it. She remained rational throughout the remainder of her hospital stay, and it was possible to return her to the convalescent hospital at the City Home without committing her to a state institution for the insane.

Case 4. L. M. B., a colored female aged thirty-eight years, was referred to the hospital from the out-patient department because of rectal sores, sore mouth and nervousness.

Present illness began seven weeks ago at which time her rectum became sore, bowel movements were painful and she passed blood by bowel. Her mouth became sore a few days later for which her physician gave her a mouth wash with some improvement. Then her vulva became sore, and slight swelling of the right labia minora was noticed. Her diet had been incomplete since December, 1937. Past history revealed a habit of drinking large amounts of whiskey, which she had cut down to two to three pints weekly for several months before the onset of the present illness.

Physical examination on admission revealed a poorly developed, poorly nourished colored female, aged thirty-eight years, nervous and apparently in some distress. T-P-R, 99.6-110-21. Blood pressure

125/88. The cranium and scalp were negative. The ears, eyes and nose were negative; but the mucous membrane of the tongue and mouth was definitely red and occasional deposits of white, cheesy material were present. The throat showed slight enlargement of the left tonsil. There was a slight rachitic deformity of the chest consisting of beaded costochondral junctions and sternal bulging. The heart and abdomen were normal. The genitalia revealed a small, edematous swelling of the right labia minora. There was an area of about 5 cm. of perianal excoriation. One large thrombotic external hemorrhoid could be seen easily; no rectal strictures were found. There was lymphadenopathy of the anterior and posterior cervical glands and bilateral inguinal glands. Extremities and reflexes were normal.

Laboratory studies: urinalysis: albumin two plus. Blood: 4,170,000 red cells; 80 per cent hemoglobin; 6,550 white cells with 65 per cent polymorphonuclears. Blood chemistry: sugar 75 mgm., non-protein nitrogen 33 mgm., total protein 6 gm. with albumin 3.1 and globulin 2.9. Wassermann positive. A Frei test was reported negative. On February 7, 1938, a teleroentgenogram showed a cardio-thoracic ratio of 41 per cent.

Hospital course: The patient was placed on a high caloric, high vitamin diet with Brewer's yeast. The perianal lesion had not improved under local treatment. On February 9, 1938, the patient developed a severe diarrhea and twelve hours afterwards showed definite signs of a dementia. On February 10, 1938, the patient was placed on 200 mgm. of nicotinic acid daily, and by February 11, 1938, her dementia had improved somewhat and the diarrhea was checked. The following day the patient's skin was dusky-red and warm, and it was believed that the nicotinic acid was responsible, so it was withdrawn. Her pulse had increased to 140. On February 14, 1938, the patient was again excited, and nicotinic acid was again begun in the same dosage. On February 17, 1938, the rectal excoriation showed marked improvement, and the mental condition was clear. Her pulse had dropped to a normal level. On February 23, 1938, the patient was discharged from the hospital mentally clear and with complete healing of the rectal lesion.

Case 5. Mr. D. B. B., a white male aged forty-one years, was admitted to the hospital complaining of nervousness, frequent pains in the abdomen and five to six stools per day. For the past several years this patient had represented a large commercial airline company in the tropical regions of South America. His habits there had no relation to the present illness except that he had used alcohol to excess for the past eight to nine years without apparent ill effects. During the twelve months preceding the present illness he had been hospitalized three times with the diagnosis of "amebiasis". On the day before admission he had had six liquid stools in the period of twenty-four hours.

His residence in the tropics and frequent exposure to strong, actinic rays there were of interest to us in view of the later findings and impressions of the case.

Physical examination: A well developed, somewhat obese white male, very restless and loquacious. The skin and mucous membranes had a definite pallor, and a moderate degree of puffiness was noted under both eyes. There were no erythematous, scaling or brownish discolored areas of the skin, and the mucous membrances of the mouth showed no hyperemia or induration. The chest and lungs were normal. On examination of the heart, the rate was 100 per minute, the rhythm regular and the blood pressure was 100/60. The abdomen and extremities were essentially negative. The deep reflexes were noted as being hyperactive, but otherwise negative.

Laboratory data: urinalysis: albumin 2 plus; acetone positive. Blood: 3,970,000 red cells; 76 per cent hemoglobin; 5,400 white cells; 64 per cent polymorphonuclears, 1 per cent eosinophiles, 30 per cent lymphocytes, 8 per cent monocytes. Mean corpuscular volume 107; mean corpuscular hemoglobin 34; mean corpuscular hemoglobin content 32. Blood chemistry: sugar 98 mgm., non-protein nitrogen 26 mgm., cholesterol 276 mgm., calcium 9.8 mgm.

Hospital course: At the time of admission the tentative diagnosis of periodic alcohol addiction and amebic dysentery was made. A proctoscopic examination done on September 28, 1938, failed to show amebae and this diagnosis was discarded. The patient was then considered as one of subclinical food deficiency in spite of the absence of typical clinical signs, and treatment along this line was instituted. For several days he was given large doses (8,000 I units) of vitamin B_1 without marked improvement except for accentuation of the appetite. He was then started on 200 mgm. of nicotinic acid per day, and this was followed by prompt stabiliza-

tion of his emotional equilibrium and a dramatic change in his reflex response from a marked hyperactivity to normal. This medication was continued for ten days and then stopped. The patient was discharged from the hospital two weeks after admission symptom free.

Case 6. Mr. J. T. H., a white male aged fifty years, was admitted to the hospital on February 14, 1938. A history was not obtainable from the patient. He was first seen in December, 1937, in another hospital, when he began to run an afternoon fever of 101 to 103, developed signs and symptoms suggesting influenza and later developed an arthritis in his wrist and elbow. This cleared up under salicylates, but the fever continued. He subsequently developed lobular pneumonia which was complicated by a serous pleuritis, and 200 to 300 cc. of a clear, straw colored fluid were removed from the right pleural cavity. He continued to have fever for the next month, but all laboratory data were negative. Transfusions and sulfanilamide were of no avail. The arthritis again arose, and subsided with salicylates. Six weeks after the onset he developed a delirium, but his temperature became normal and remained so. He was taken home, and his temperature again rose to 102. Because of the above series of events, the patient was referred into this hospital for study and diagnosis.

Examination on admission, including general physical examination and routine laboratory studies, was entirely negative. Subsequent studies of the blood chemistry revealed a sugar of 87 mgm. and a non-protein nitrogen of 28 mgm. Spinal puncture on February 16th showed a clear, sparkling fluid under normal pressure, one white blood cell, slight trace of globulin, and a negative Wassermann and Mastic test. Repeated blood cultures and routine agglutinations were entirely negative. Teleroentgenogram on February 26th showed no pathological change.

Hospital course: During the period in the hospital, the patient was completely irrational, disorientated and showed every evidence of progressively becoming weaker. Because his mental disturbance simulated very closely that seen in pellagra and chronic alcoholism, it was decided to attempt the use of nicotinic acid and on February 28th, two weeks after admission to the hospital and nearly two months after the onset of his mental illness, he was given an initial dose of 200 mgm. in 100 cc. of water. This was repeated daily for five times, and by March 5, 1938, he showed marked improvement in his mental symptoms to such a degree that he was oriented, quite rational and very cooperative. On March 9th he was in condition to be moved from isolation and placed out with the general ward patients. On March 16, 1938, he was discharged and recommended to be put on a full vitamin diet and ferrous sulphate.

COMMENTS

In presenting this rather heterogenous series of cases, only one of which presents signs of classical pellagra, we have become more interested in the effect of nicotinic acid on the lesions of the mouth and upon the central nervous system symptoms than upon the ordinary skin lesions which have been noted so frequently.

In the lesions of the mouth noted in Cases 1 and 4, the general appearance of the mucous membranes of the lips, gums and teeth resembled to some degree that seen in aphthous stomatitis not usually associated with deficiency syndromes. It is, therefore, suggested that this type of lesion, particularly when of a recurrent nature, is a manifestation of a dietary deficiency and might respond promptly to the oral administration of nicotinic acid, even though the skin and central nervous system manifestations are entirely absent.

The central nervous system symptoms noted in all cases except the first likewise give rise to speculation. Spies and his co-workers[7, 8] have given close consideration to the prompt response of various mental variations after nicotinic acid therapy was started; and in Cases 2, 3 and 4 of this series, where the diagnosis of pellagra was found tenable either in view of the history or physical findings, the response was dramatic and fitted well into the observations previously made. In Case 5, however, a clinical diagnosis of pellagra could not be made although the mental symptoms and history of over-indulgence of alcohol suggested a deficiency disease similar to some degree with pellagra. The response to nicotinic acid was prompt and effective. This situation carries the implication that all chronic alcoholics are potential or even border-line pellagrins, and further food deficiency will progress to peripheral neuritis in case of B_1 shortage, and dementia in the case of G shortage.[9] It has become our custom to use nicotinic acid routinely in the treatment of these patients, regardless of the presence or absence

of signs of true pellagra. As an example, all pneumonia patients with an alcoholic background are given adequate doses of this drug along with the other treatment.

CONCLUSIONS

I. A case of pellagra is reported in a twenty-year-old colored female treated with nicotinic acid with prompt and complete cure of the lesions of the skin and mucous membranes. In addition to this effect, the following observations were made:

1. There was no appreciable change in pulse rate, blood pressure, or respiration immediately after the administration of the nicotinic acid.

2. Three slight flushing reactions occurred from fifteen minutes to three hours after the administration of the drug, lasting from ten to twenty minutes, without causing the patient discomfort.

3. There was a rise in the white blood cell count from 1,800 to 4,800 in three days.

4. The cholesterol rose from 100 mgm. on April 20, 1938, to 258 mgm. on May 9, 1938.

5. The cardio-thoracic ratio increased from 35 per cent to 39 per cent.

II. Three cases of pellagra are reported in less detail, showing marked improvement in the mental symptoms following the use of nicotinic acid.

III. One case of chronic alcoholism without clinical evidence of pellagra is reported in which the mental symptoms subsided promptly after beginning the use of nicotinic acid.

IV. One case is reported in which a psychosis appeared after a prolonged non-specific febrile illness with dramatic response to nicotinic acid therapy.

V. Comment is made regarding the possible relationship of so-called recurrent aphthous stomatitis to deficiency syndromes, and its possible cure by the use of nicotinic acid.

VI. The thought is offered that all chronic alcoholics are potential pellagrins or victims of peripheral neuritis, and that nicotinic acid should be given prophylactically in the management of this type of patient.

NOTE: The authors wish to express their appreciation to Merck and Company for the nicotinic acid used in the treatment of these cases.

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Medical Arts Building.

HYDROCEPHALUS OF THE FETUS COMPLICATING PREGNANCY—A REPORT OF TWO CASES.*

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My attention has been forcibly called to congenital hydrocephalus of the fetus by having had two such cases come under my recent care. Both cases will be reviewed in detail later in this paper, and special emphasis will be placed on the imperative necessity of early diagnosis in handling this anomaly.

Congenital hydrocephalus is an enlargement of the cranial vault during intrauterine life and is due to distention of the cerebral ventricles by an excessive amount of cerebrospinal fluid, characterized by more or less pressure destruction of the brain tissue. While DeLee states that nothing is definitely known concerning its etiology, the researches of Dandy and

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Blackfan indicate that it is due to an obliteration of Magendie's foramen. The fetal head attains proportions considerably larger than normal, while the brain tissue itself forms only a layer a few millimeters thick beneath the skull bones. Frequently a hydrocephalic fetus presents other congenital malformations such as spina bifida, club feet, hernia of the skull contents forming hydroencephalocele. Frequently large hydrocephalic fetuses are found to be presenting by the breech, or transverse lie, rather than that of a vertex, due presumably to the dystocia.

The incidence of hydrocephalus *in utero* is a rare complication of labor, but a false diagnosis can result in so much harm that the practitioner must continually keep it in mind in those cases which present a dystocia. In literature on the subject the maternal death rate with severe hydrocephalus is given as 17 to 20 per cent. The offending factor is the failure of diagnosis of the condition before labor has progressed too far. Rupture of the uterus due to dystocia is the greatest danger to be prevented.

Simpson was the first to point out that hydrocephalus was a frequent cause of rupture of the uterus. F. Muller recorded five cases of hydrocephalus in 108 ruptures; Merz listed eighteen cases in 230 ruptures; Franck found twelve cases of the condition among 419 uterine ruptures (3 per cent).

Aside from rupture of the uterus, unless the diagnosis is made early the physician might attempt an inexpedient version or high forceps, resulting in undue intrauterine manipulation and laying the patient liable to severe lacerations, bladder fistulae and septic infections.

The diagnosis of hydrocephalus depends upon several factors, chief among which is that of always keeping it in mind in all cases of dystocia between the head and pelvis, and in all cases of breech presentation. Palpation of the head frequently suggests the diagnosis, but in all cases roentgenological investigation will clarify the dystocia. Once the diagnosis has been established by X-ray the treatment is greatly simplified. Vaginal examination is by no means conclusive in making the diagnosis, but it is greatly suggestive of hydrocephalus of the fetus when an abnormal separation of the sutures and fontanels can be palpated through a partially dilated cervix. The balloon-sized head of hydrocephalus obviously does not engage even after labor has been under way for some time. To enumerate briefly, the chief points in arriving at a diagnosis are:

(1) Palpation of abnormally large fetal head.

(2) Non-engagement of the fetal head, before or during labor.

(3) Anticipating hydrocephalus in all breech presentations.

(4) Abnormal gaping of the fontanels and sutures felt during vaginal examination.

(5) X-ray study of all suspicious cases.

(6) By being alert to the possibility of its occurrence.

The complications of the failure to recognize hydrocephalus of the fetus early have already been briefly alluded to, but chief among these are rupture of the uterus with all of its attending disastrous consequences.

The treatment is fairly simple, and one which can be easily managed by the average physician. The fact that the fetus is developmentally abnormal, with mental arrest, frequent clubbed feet and spina bifida, makes consideration of the child's life negligible, and sacrifice of its life the method of choice in terminating the delivery. The only measure indicated is the opening of the fetal skull and allowing the cerebrospinal fluid to drain off. This permits the fetal skull to collapse completely, similar to a deflated balloon, and the patient may then be allowed to deliver herself spontaneously. If the cervix is completely dilated the physician might do an expedient version, depending upon his skill and experience to terminate the labor at once. For the average man, and in those cases in which the patient has had a long labor with ruptured membranes it is probably safer to allow a spontaneous delivery after the fetal head has been completely drained.

Non-invasion of the uterine cavity by version, however, would lay the patient less liable to infection.

I have two cases of hydrocephalus of the fetus to report, who have come under my service since 1935.

Case 1.—Mary Riddick, colored, age forty-one, admitted to Norfolk General Hospital at 10 A.M., October 19, 1935. The history revealed that she had had seven previous full term pregnancies, all living, and that her present pregnancy would have been at term October 26th. She stated that Thursday night, October 17th, at 8 P.M., she went into labor and had regular strong pains until about the same time the next night (twenty-four hours), Friday, at which time she bled profusely from the vagina and experienced a continuous severe abdominal pain. The

pain continued all through the night, accompanied by excessive bleeding and increasing weakness. All during her labor to this point she had been attended only by a midwife who had made several vaginal examinations. Finally recognizing the gravity of the condition, a physician was called in early Saturday morning. He made a vaginal examination and sent the patient at once to the hospital.

On admission to the hospital the patient was conscious, but in extreme shock, and practically pulseless. Emergency intravenous glucose was given immediately. The chest examination revealed numerous fine moist rales at the bases of both lungs. The heart sounds were so faint that they could hardly be heard. No blood pressure reading was obtainable. The abdomen was quite tender and seemed to contain a term pregnancy. The fetal parts were so easily felt that the fetus was suspected of being free in the abdomen. No fetal heart sounds were heard. The fetal head was felt at the umbilicus, and a softer mass between the head and the pubis. There was fulness in both flanks and dulness on percussion.

After the patient's condition had improved from intravenous glucose, a sterile vaginal examination was made. The cervix was found to be 4 cm. dilated, and what was taken to be placental tissue felt through it. A diagnosis of ruptured uterus was made and the patient posted for immediate laparotomy, seventeen hours after rupture of uterus.

As soon as the peritoneum was opened a large amount of free blood came out. The baby and placenta were both free in the abdominal cavity. A large laceration in the lower uterine segment extended through the broad ligament between the bladder and left round ligament. It was about five inches long. The uterine artery was exposed, pulsating and had not been torn, accounting for no fatal hemorrhage. The peritoneum showed evidence of moderate peritonitis, and all of the intestines were greatly distended. A hysterectomy was done as rapidly as possible. Two Penrose drains were placed in the cul-de-sac and one iodoform drain in the tear of the broad ligament. The fetus was a hydrocephalic large infant with attendant rigor mortis. The measurements of the fetal head are of interest:

Normal—Bitemporal	8.25	Fetal—10
Biparietal	9.5	11
Sub-occipito bregmatic	9.5	12
Occipito-frontal	11.5	13
Occipito-mental	14	16
Length		55
Weight—male		9 lb. 1 oz.

Post-operatively the patient was given an immediate transfusion of 500 cc. citrated blood and a Wagenstein was placed in the stomach. Digifolin was given and intravenous glucose was given twice daily. The transfusion of 500 cc. was repeated the following day. The patient became progressively weaker and died about noon on the second post-operative day.

The temperature on admission was 99 F., pulse 100, respiration 24. The temperature after operation and during the rest of her course stayed around 103 F. The pulse varied from 115 to 145.

The urinalysis on admission showed acid reaction, specific gravity 1.022, heavy cloud of albumen, and was positive for sugar. The microscopic examination showed many casts, 8-10 pus cells and many R.B.C. in the catheterized specimen. Hemoglobin on admission was 76 per cent, with 4,220,000 R.B.C.

The prognosis was exceedingly grave even when admitted to the hospital and, even though the uterus had been ruptured seventeen hours prior to the operation, it was the only chance that one had to offer this patient to survive.

In retrospect, the offending factor here was failure to diagnose the complication of hydrocephalus, repeated vaginal examinations made by the midwife and failure of the midwife to solicit medical help even at rupture of the uterus.

Case 2.—L.H., colored female, age twenty-eight, presented herself to the prenatal clinic with her first pregnancy, two months prior to the onset of labor, and was essentially negative in every respect. Physical examination and pelvic measurements were within normal limits. Wassermann was negative. Her expected date of confinement was January 15, 1937.

Her fifth prenatal visit was on November 10, 1936, at which time it was noted that the fundus measured 26 cm.; the fetal heart was not audible, the head was not engaged, and the position undetermined.

On November 20, 1936, the patient was admitted to the hospital complaining of a slight pink watery discharge and "of a feeling that something was not quite right". She spent the night without going into labor. Early the following morning the patient was seen by me and the fetal head was palpated well

above the pelvic brim and considerably larger than normal. Suspecting a hydrocephalic fetus, I had an X-ray made which confirmed the suspicion. Since the patient was a nullipara and had had no labor, it was decided that the best means of inducing labor was by bag induction, so at 11 A.M. the largest size Voorhees' bag was inserted into the lower uterine segment under gas anesthesia. The labor came on gradually and twenty-four hours later the bag was expelled. The patient was then anesthetized and prepared for delivery. The cervix was found to be completely dilated. A large trochar and canula was pushed through the sagittal suture of the fetal skull and approximately 1,000 c.c. of clear cerebrospinal fluid was drained off. This permitted a complete collapse of the head. The delivery was then easily terminated by version and extraction. The patient ran a morbid temperature for three days post-delivery and from that time was symptom free and discharged on the 11th post-partum day.

These two case present vividly the point of this paper—to-wit: the early diagnosis of dystocia in labor and its proper method of treatment in those cases due to hydrocephalus of the fetus.

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Medical Arts Building.

THE GENERAL CARE OF A DIABETIC.*

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In all activities it is important to keep clear before us the ultimate goal. A lapse in this respect leads to confusion and may even defeat our purpose. This rule holds true in medicine as elsewhere. Our object in treating the person with diabetes is not to control the sugar but to enable the patient to lead a long and healthy life. Control of the sugar is a secondary consideration, the means and not the end. For this reason the person with diabetes who is given only dietary and insulin treatment is an incompletely treated patient. Whereas these two are vital factors, they are by no means the only ones determining the welfare of the individual. The controlled diabetic is still a person subject to all the ills of the flesh to which non-diabetics are susceptible, and in addition he is prone to have some diseases more often and to have minor ailments develop into severe diseases. Meticulous care of the entire organism and unceasing vigilance are essential if one is to maintain the diabetic individual in good health throughout a normal span of life. Special attention to all forms of personal hygiene, regular visits to the attending physician, and prompt control of every ailment regardless of its severity must supplement the strictly diabetic treatment if our therapy is to be complete.

Much time must be expended if we are to give the maximum services to the patient, but in general only the new patient with diabetes requires more time than we ordinarily allow to each patient. He is suffering from a chronic disease which will linger throughout his life, and his life must be so ordered as to provide for this association. Furthermore, to him it is entirely new. He must learn about it as he first learned to read and write, and at the same time we must study him as he studies this new companion. A careful and detailed history must be taken with reference not only to former and co-incident diseases and the state of his physical condition but also to his habits of living and the quality of his personal hygiene which may affect his ultimate health.

The diet is essential but the rapidity and regularity of eating and the degree of mastication are not insignificant. A well chewed meal is utilized with less trouble than one which is bolted, and without a good set of teeth this is difficult. Furthermore, excessive

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fatigue or emotional stress impairs digestion, and the poorly absorbed meal may lead to an insulin reaction. Similarly, unusual exercise may bring on a hypoglycemic attack unless we provide for this with extra food prior to or during the period of activity. Exercise should be encouraged, but the patient should choose a form which is readily available, fitted to his time and physical requirements, within his means, suited to his taste and in contrast to his work and adapted to use in later life. Gradual increase should be insisted on at first, and then regular times should be observed. One should not overlook posture which, if faulty, may cause strain of the spinal column, and disturbance of respiratory excursion with resulting dyspnea and lowered vital capacity. In combination with exercise we must consider rest, sleep, and relaxation. Sometimes sleep is imperfect because the patient retires too early or lies abed too long. Sometimes fatigue is due not so much to the total energy expended but to the fact that the activity is not broken by short periods of rest. Exercise can be restful if it affords diversion from the routine.

The use of tobacco, alcohol and drugs must be regulated for each individual patient. One person may be so sensitive to tobacco as to have marked languor and lassitude, and another may merely suffer the slight upper respiratory irritation common to all smokers. Chewing tobacco should be forbidden if it contains sugar. Alcohol can profitably be omitted in nearly all cases, and sweet wines are as detrimental as candy. Drugs are advisable only to the smallest extent compatible with good therapeutics, and even then one must consider the sugar and caloric content of the coating or vehicle.

The prevention of infection in diabetics can be enhanced in three ways: By cleanliness, good general care, and the reduction of contact with disease. The diabetic person cannot afford to be dirty. His skin, mouth and nose must be cleansed often and well. Dirty food and drink are dangerous to all of us, just as is impure air. One cannot always avoid injury to the skin but the clean skin is not likely to become infected. A good diet, adequate sleep and exercise, and good general health do much to increase resistance. In view of the seriousness of infection in diabetes it behooves the diabetic to avoid all needless contact with infectious disease. During epidemics they should remain as isolated as is feasible. Along the same line they should rid their own bodies of infection, including that found around the teeth, in the tonsils, sinuses, prostate or gall-bladder. Not only do infected teeth cause focal symptoms such as neuritis, but a severe systemic infection may arise and cause prolonged disability or even death. One must be sure that no operative work, including dental extraction, is done until treatment of the diabetes and associated maladies is given. Occasionally vaccination is avoided in a diabetic because of the temporary upset resulting. If we are so anxious to avoid the mild upset, we should be even more eager to prevent the disease itself. For this reason I urge effective vaccination for all disease to which this individual patient is reasonably liable.

The incidence of gangrene and foot infection is so great as to warrant separate consideration. There are two underlying defects, a damaged arterial system and a diseased nervous system. The first disturbs the circulation and the second the sensitivity of the skin. We can postpone these defects only by prolonged general and diabetics care, but we can do much more by eliminating the precipitating causes of the foot lesions. Calluses, corns, ingrowing nails and athlete's foot should be prevented or corrected. They provide local areas with poor circulation and damage the skin so that germs may take hold. Ill-fitting shoes are by far the greatest cause of foot deformities, and the emphasis in treatment must be on this topic. Next we may mention wearing new shoes too long a time at first, allowing them to get too run down at the heels or the lining to get rough. Holes or rough darns or seams in the socks and walking on the bare feet may give rise to injury. Hot water bottles, electric pads, strong antiseptics, or carelessness in trimming the nails may initiate severe lesions. There are other considerations, but this paper is intended rather to remind us of the principles of treatment rather than to list the details.

Regular visits to the doctor and prompt attention to even trivial maladies may constitute the difference between good care and serious neglect. The obese patient, for example, may have a written copy of the correct diet, and yet without the regular visit every month or two little errors, intentional or innocent, may be committed and the expected weight loss may fail to materialize. The reverse may also occur—that the diet needed changing to prevent too rapid a weight loss or the development of a deficiency disease. Whatever the cause it is undoubtedly true that the patient seen regularly is the healthier patient in the long run. One must also urge the patient to at-

tend promptly to the smallest injury to the skin, the slightest head or chest cold and other apparently insignificant conditions. The neglected cold becomes pneumonia, the boil a carbuncle, and the sore toe gangrene. A slight distaste for food may be the initial symptom of fatal diabetic coma. If the urine had been tested daily by this patient, glycosuria would have warned him days before that something was wrong, and a consultation with his doctor would have prevented this death. The frequency of routine visits may be adjusted so as to impose little hardship on the patient and yet to provide for all his needs.

In fact, all treatment must be made relatively easy and entirely practical if we are to obtain the needed cooperation from the patient. First we must teach him what the disease means, what neglect of it will cause, and how well the patient may do if he follows treatment. Next we must arrange the treatment to suit the daily routine of the person, and then persuade him to follow it regularly until it becomes habit and not an imposition. The patient who is lax about treatment is not always to blame. Sometimes the treatment is too strenuous. A diet that is too strict may cause such weakness that the patient forsakes it. Sometimes the insulin dosage is so great as to cause reactions, and therefore the patient omits it. Needless to say we should insist that the patient notify us at once in the event untoward symptoms occur, and then we may adjust the regime to correct the symptoms. In this way the patient acquires confidence in us and learns to seek our help in time of trouble.

Even all this care of the physical organism does not embrace the entire management of the patient. The human being is not simply a machine, nor is life merely a matter of health. Other considerations are vital. It is conceivable that the best physical care of the disease entails a regime so intense as to prevent the more important function of earning a living. So also may the patient's attitude be so altered as to render even a healthy existence of little pleasure or use to him. The doctor cannot be either an extreme materialist nor yet a violent idealist. He must be a real mediator who will sacrifice the ideal physical condition for the welfare of the patient as a human being. I remember entering the room of a very fine lady one day while she was in tears. By a little coaxing I extracted the cause of the upset. She was the doctor's ideal patient. She did everything he suggested. In the early morning she arose, tested her urine, took her insulin, weighed her food, and ate her breakfast. After breakfast she took Buerger exercises for the benefit of her feet and then walked for another hour. This was followed by a rest period, which in turn was followed by insulin and another meal. The afternoon was a repetition of the morning. After supper the Buerger exercises were repeated, the urine again tested, the skin carefully washed and the feet equally carefully greased. Thence to bed. The treatment was entirely effective from a physical point of view, but the long and healthy life had lost much of its appeal to this lady. Nevertheless, the fear of diabetes and its neglect was so great that even such a life was preferable to one less beneficial to the body. It is a strange standard that accepts this as good treatment for the patient, save as a temporary measure for a grave situation.

On the other hand, it is at times necessary to sacrifice all other considerations for the physical alone. Inopportune neglect of the physical treatment may lead to permanent disability or even death, and at such times the medical treatment must be administered vigorously and without compromise. There are not many people who prefer an easy death to a hard life, and in the last analysis our patients come to us for the cure of bodily complaints. With this in mind, it behooves us to use without over-emphasis every means at hand to maintain the entire body in a state of health and at the same time to prevent a distorted view of his condition and the bearing it has on his life as a whole.

209 Medical Arts Building.

A CASE OF MALIGNANT KERATOMALACIA.

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D. S., a Filipino male and twin, age three months, was admitted to the Honolulu City and County Service of the Kauikeolani Children's Hospital, with diagnosis of marasmus, pneumonia, bilateral acute otitis media, acute nasopharyngitis, and bilateral keratitis. The weight was a little less than five pounds. He had always been weak, with inappetence, and without evidence of acute infection until

two days prior to admission when he developed, almost simultaneously, the enumerated pathological changes.

Upon examination of the eyes, there was slight edema of the lids, slight chemosis of the bulbar conjunctiva with circumcorneal injection. No purulent discharge was evident. Ocular movements were normal, both pupils normally reacting to light and accommodation. There were a few gray areas dispersed in the corneae bilaterally. None were discrete. These interfered with adequate fundi examination. There did not appear to be many or severe changes in the fundi. The corneal changes strongly suggested the onset of an interstitial keratitis and Wassermann and Kahn were advised for both parents, with prompt refusal.

Fig. 1.—Photo taken when awakening from sleep four days after corneal changes were first noted.

Fig. 2.—Photo taken same date as Fig 1 to illustrate state of marasmus. At age of three months the child weighed less than five pounds. Photo taken before secretions were removed.

The corneae rapidly became atrophic, ulcerated, sloughing away, resembling mutton fat. So rapid was the destruction that in four days it was evident that both eyes had been hopelessly destroyed.

There were areas of ectasia and buphthalmos to a moderate degree. Perforation of both corneae resulted with incarceration of the iris and expulsion of aqueous and vitreous humours.

All signs and symptoms of the disease were markedly accentuated. The temperature fluctuated between ninety-eight degrees F. and 104 degrees F. Both the Mantoux and Wassermann tests were done. These were negative. Urinalysis revealed only a trace of albumin. Repeated conjunctival and corneal smears showed no pus. Bacteria were mixed, a few gram negative diplococci, many catarrhalis, diphtheroids, etc. The child expired twelve days after admission.

An autopsy there was empyema bilaterally and lung pathology. The collapsed eyeballs showed pathological changes chiefly in the anterior one-third. No spirochaeta pallida or acid fast organisms were found, or organisms suggesting Neisser's infection.

Comment: Cases of malignant keratomalacia occur in infants with poor vitality, hygiene, insufficient or imbalanced food intake.

This case illustrates the amazing rate of destruction of eyes in a marasmic child with superimposed acute infections.

65 Alexander Young Building.

DIAGNOSIS OF SYPHILIS.*

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For modern syphilology the great period of discovery was in the years 1905 to 1910. Within that brief span were discovered the organism, the complement fixation test, and arsphenamine. In the years which followed, the still more sensitive flocculation tests were introduced and bismuth replaced mercury in the scheme of treatment. With these new instruments physicians developed the technics of diagnosis and treatment.

The last decade has been an equally notable period of analysis and consolidation. Cooperative Clinical Group studies have compared the various regimens of treatment, gleaning their data from 75,000 case histories; for no other serious disease is there so satisfactory and so specific a treatment as those studies developed for early and latent syphilis. The Committee on Evaluation of Serodiagnostic Tests has demonstrated that 100 per cent specificity and a sensitivity of 80 per cent are routinely obtainable objectives. Neurosyphilis, cardiovascular syphilis, and prenatal syphilis have been subjected to similarly searching inquiry.

*Read at the meeting of the Mid-Tidewater Medical Society in West Point, Va., January 24, 1939.

It is fitting that this symposium should begin with diagnosis. It is the first clinical problem. In a society where even physicians have sometimes been reluctant to face syphilis, and with a disease of so many disguises, it requires emphasis. Half a million early cases and 600,000 advanced cases of syphilis go to physicians for the first time each year. The advanced cases suggest that our "index of suspicion" for the earlier diagnosis has been too low.

General Considerations

The physician's share of the syphilis control hinges on two major points—finding and treatment. They are inextricably interwoven. It will do little good to bring under treatment a million patients if the treatment given them is inefficient. On the other hand, treatment, no matter how efficient, will not solve the problem unless patients are actually recognized and provided with its benefits.

On the whole, experience has convinced us that in spite of all present-day shortcomings, the treatment element is better performed than finding. Bad as it often is, the treatment of those patients actually submitted to it does accomplish a great deal. That a decrease in the incidence of syphilis is not yet apparent is due largely to the fact that so many syphilitic patients pass completely unrecognized until the damage of infection of others or the ultimate breakdown of the individual has already occurred.

What are the reasons for this failure? Case-finding involves two elements—the correct diagnosis by the physician of patients with actual lesions of syphilis, and organized effort to search out the patient who has no lesions. In which of these two elements does the medical profession fail? I believe it fails in both, and for three reasons.

Too many doctors still believe that nobody has syphilis except Negroes, prostitutes, and criminals. Their own patients, failing to fall into one of these classes, are too well born, too moral, too well educated, too well to do, to be infected. Too many doctors, surprising as it seems, still think of syphilis as a disgrace, not as a disease, and hesitate to suggest the necessary steps for diagnosis lest the patient's feelings be wounded. Too many, even if they do recognize syphilis, still think of it as well-earned punishment for sin, and do less than their part in administering or arranging for proper treatment.

Such statements as "10 per cent of the adult population is infected" fall on uncomprehending ears, and are as difficult to interpret in terms of personal experience as the billions of the national debt. Even if the facts of 500,000 fresh infections each year and a total of some 10,000,000 syphilitic adults in the country are accepted, there is no appreciation of the fact that *all* social classes, not only the lowest, are to some extent involved.

The possibility of syphilis is dismissed as incredible. That syphilis can occur in the clientele of the family doctor who has known his patients for a lifetime is beyond belief. It is likewise incredible that the specialists's patients, well educated and relatively well to do, can be infected with a disease which he believes to be limited to social groups with which he does not deal.

The medical profession's attitude of mind must be remedied before case-finding in syphilis is adequately successful.

The most important reason for failure lies not in the confusion of morals and medicine, but in the diagnostic inaccuracies of medicine itself. So far as syphilis is concerned, there is still too great reliance on clinical acumen, too little appreciation of the fact that syphilis can so imitate or be imitated by other diseases that clinical diagnosis is sometimes literally impossible, too little awareness that the possible lesions of syphilis are so diverse that in these complicated days few physicians can be expected to recognize them all.

The teaching of syphilis in medical schools is sometimes scattered through all general and special departments, it is sometimes centralized in special clinics, and is sometimes carried on in both fashions. Whichever method is used, there is usually far too much detail. The student is expected to learn expertness in the diagnostic differentiation of genital lesions, of skin rashes, of ocular lesions, of cardiac disorders, of neuropsychiatric diseases. He is expected, as part of his general training, to acquire knowledge in special fields to which the several experts in these fields have devoted lifetimes. If he makes use of special textbooks devoted to syphilis, he is faced with the same difficulty in concentrated form. There is a tendency to require that he know the differential diagnostic points, for example, between, pityriasis rosea and the macular syphilide, between hepatic syphilis and cholecystitis, between tabes dorsalis and subacute combined sclerosis. The details of these and similar points are insisted upon to the exclusion of the far simpler principles which ought to govern diagnosis.

In history taking, the first step is to record the patient's complaint in his own words. If the syphilitic person complains at all, of what does he complain and how valuable is his complaint in arousing suspicion of syphilis? Almost never does he say "I have syphilis." Instead, he says he has a sore on the penis, a skin rash, a sore mouth or throat, sore eyes, falling hair, malaise, fever, headache, rheumatism, pain in the abdomen, nausea and vomiting, constipation, shortness of breath, weakness, difficulty in urination, pains in his legs—in short, the same complaints that greet the doctor every day among his nonsyphilitic patients.

To what physicians does the patient go with these complaints? First and foremost, of course, to the family doctor, the general practitioner. If he thinks himself wise enough to choose his own specialist, or if he goes to a polyclinic hospital, his original contact is with one or another specialist (rarely the syphilologist). Patients with primary or secondary syphilis gravitate to the urologist, gynecologist, dermatologist, ophthalmologist, laryngologist, orthopedist, or even the neurosurgeon. The same group of specialists, plus the general surgeon, internist, obstetrician, neurologist, and psychiatrist, encounter the patient with late syphilis. The pediatrician struggles with the problem of congenital syphilis bequeathed to him by careless obstetrics. In short, no special branch of medicine is exempt from having to decide, not infrequently but often, whether his patient has syphilis or some other disease.

Can the family physician, the general practitioner, have the clinical knowledge of all these branches of medicine adequate to permit him to recognize syphilis when he sees it? To ask the question is to answer it. Can the urologist or dermatologist have sufficient knowledge of internal medicine, neurology, psychiatry, and ophthalmology to enable him to deal properly with late syphilis? Can any physician lacking special training in dermatology recognize clinically all or even a fair proportion of patients with syphilitic skin lesions? To ask these questions is to answer them too.

It is obviously impossible to expect of the general practitioner expertness in diagnostic differentiation in all the special branches of medicine in which the lesions of syphilis may fall, and likewise impossible to exact of the specialist an adequate knowledge of general medicine and of all other special branches than his own as well. How then is the problem of diagnosis to be solved? Not by the creation of a special group of syphilologists, whose function in this domain is presently described, but by leaving the diagnosis of syphilis precisely where it is, in the hands of every physician, no matter what his special training.

If this is to prove successful, there must, however, be less insistence on details of clinical diagnosis and more on fundamental principles. I am convinced that the average medical student, general practitioner, and specialist can be taught all that is necessary for him to know of the clinical manifestations of syphilis and their recognition (outside his own special field) in far simpler fashion than is the present custom, in far less time than the medical curriculum usually devotes, and in far less space of printed matter than is expended by current texts on syphilis.

Syphilology as a diagnostic specialty does not and cannot exist. While it is true that the syphilologist, if he is competent, is a well-trained internist, with added knowledge adequate to his special field of the particular specialties of dermatology, ophthalmology, neurology, and psychiatry, he is far more often called upon to apply his knowledge to the problems of treatment than to those of diagnosis. In the latter respect he serves only as a consultant, and rarely as that. His patients come to him for the most part already diagnosed as syphilitic by another physician. His job is to find out what kind of syphilis, what structures have been damaged by syphilis (and other diseases as well) and to what extent, and to estimate the effect of this damage in planning treatment.

THE FUNDAMENTAL PRINCIPLES OF DIAGNOSIS OF SYPHILIS

Considering the disease as a whole, these are only three: 1. Raise the index of suspicion of the doctor. Let him realize that syphilis is the most prevalent of all the major infections, and that some of his own patients may be infected. 2. Emphasize repeatedly that syphilis is often difficult to diagnose clinically, even for the expert; that clinical suspicion is easier to arouse than is clinical certainty to determine. 3. Emphasize still more repeatedly that clinical suspicion, once aroused, can in most instances be accurately resolved into a certainty by a serologic test. In untreated syphilis, the serologic test is 95 per cent efficient.

The Diagnosis of Early Syphilis (Primary Stage)

Every physician should learn by heart the six diagnostic maxims. These are sufficiently self-explanatory as to require no textual expansion: 1. Any genital sore in male or female is possibly primary syphilis until proved to be otherwise. 2. Any indolent lesion anywhere on the body (especially lips, tonsils, fingers) which fails to heal in two weeks may be primary syphilis. 3. The diagnosis of primary syphilis is a laboratory, not a clinical, procedure. 4. Do not treat suspected primary syphilis locally until repeated dark fields are negative. 5. Do not give antisyphilitic treatment on suspicion; prove the diagnosis. 6. There is reason for urgent haste in diagnosis; hours count. If there are generally applied, the proportion of patients coming under treatment for primary (especially seronegative) rather than secondary syphilis (i.e., when the chance of cure is 20 per cent greater than a few days later) would be enormously increased.

Diagnostic Confusion in Primary Syphilis

There are thirteen conditions (eleven of them non-syphilitic and all of them common) with which genital primary syphilis may be clinically confused. Primary syphilis may look like, and must be distinguished from, gonorrhea, chancroid, herpes progenitalis, scabies, venereal warts, carcinoma, granuloma inguinale, lymphopathia venereum, balanitis gangrenosa, traumatic lesions, pyogenic lesions, secondary syphilis and late syphilis-gumma. Diagnostic confusions of extragenital primary syphilis are as follows: *Lip*—Infected fever blister, trauma, carcinoma, tuberculosis; *Tonsil*—Acute follicular tonsillitis, chronic tonsillitis, Vincent's angina, neoplasm; *Finger* (suspect doctors, nurses and dentists) —Infected hangnail, paronychia, onychia and bone felon.

Each of these conditions except gonorrhea implies the presence of a sore. With gonorrhea a special word of caution is necessary. Suspect all patients with gonorrhea of simultaneous infection with syphilis (intraurethral chancre, painless discharge masked by gonorrheal pus), but particularly suspect those patients with painless, rubbery, discrete inguinal adenopathy.

With the other genital conditions enumerated, the presence or absence of satellite bubo is of little importance. In about 30 per cent of patients with primary syphilis, the bubo is completely absent, and in most it does not appear until the chancre has been present about a week. In extragenital primary syphilis, however, the bubo may be the first "suspicion arouser."

The Diagnosis of Primary Syphilis

The necessary diagnostic steps in primary syphilis are as follows: 1. Dark-fiield of surface serum. If negative, repeat at least three times on consecutive days before local treatment. 2. If surface dark-field is negative, do dark-field of aspirated serum from lesion's base; or 2a. Dark-field of aspirated material from lymph node. 3. If you have no dark-field microscope, send the patient at once to someone who has; or send a capillary tube specimen to the nearest laboratory. 4. Do serologic test at first visit. If any of these tests are positive, treat at once. If all are negative, 5. Do serologic test follow-up for three months, weekly for first month, every two weeks thereafter.

Urgent haste in reaching a diagnosis is essential: 1. For the protection of others; 2. For improved chance of "cure" for the patient himself. Literally, hours count and days are all important. Delay is inexcusable.

The dark-field microscopic diagnosis is most desirable. Few physicians possess this equipment or are experienced in its use. However, there is a syphilologic consultant in the State health department laboratory who is properly equipped. The patient or a specimen should reach him within a few hours. It is not worth while, therefore, to describe the dark-field technic or the differentiation of Treponema pallidum from other spirochaetes. The inexperienced physician cannot learn sufficient expertness by reading about it; the expert does not require written text but has acquired his knowledge by actual practice.

Whenever primary syphilis is suspected, do one of two things: 1. Preferably, he should at once send the patient in person to a properly equipped colleague or laboratory, where the dark-field of surface serum, and, if necessary of serum obtained by aspiration of the base of the lesion or neighboring lymph node may be promptly carried out. Capillary tube outfits are furnished free of charge by the State boards of health. 2. If no such colleague or laboratory is available in the neighborhood, he should at once prepare and send to the nearest health department laboratory.

The presence of T. pallidum in serum from a suspected lesion makes a positive diagnosis of syphilis,

and treatment should be commenced at once. Failure to find the organism does not mean that the lesion is not syphilis. Carry out the serologic follow-up for three months as directed in all such cases.

Secondary Stage

Six relatively simple maxims should, like those for primary syphilis, be learned by heart. The clinical diagnosis of secondary syphilis, often extraordinarily difficult even for the expert, will thereby be enormously simplified. 1. Do blood serologic follow-up for three months on any lesion which was possibly primary syphilis. 2. For any generalized skin eruption; 3. For any sore mouth or throat which does not heal in ten days; 4. For any unexplained patchy loss of hair; 5. For any iritis or neuroretinitis; 6. For any vague bone pains or polyarticular arthralgia—"acute, subacute, or chronic infectious arthritis".

The first of these, the serologic follow-up on any lesion which might possibly have been primary syphilis, takes into consideration two important points; that it is highly desirable to recognize secondary syphilis before it develops (the serologic test always becomes positive before the actual appearance of lesions); and that the lesions of secondary syphilis may either be completely lacking or so trivial as to be overlooked by patient and physician alike.

Conditions drawing attention to the common lesions of secondary syphilis are five: generalized skin eruption, mucosal lesions, alopecia, iritis, and arthralgia. There are of course other manifestations which may and do occur, but in comparison with these five they are rare. Ninety-five per cent of all patients with secondary syphilis will present one or a combination of these five manifestations.

The maxims also emphasize, by indirection, that the clinical differentiation of these lesions from other conditions is often difficult or impossible, and that diagnostic safety depends entirely on two points: 1. That the physician suspect secondary syphilis when any one of these manifestations occurs; and 2. That he check his suspicion by a blood serologic test.

Fortunately for accuracy of diagnosis, the serologic test has its highest negative value during the secondary stage of syphilis. It is always positive (100 per cent). If it is negative, there is practical assurance that the clinical suspicion was wrong, and that the patient has some other disease.

Diagnosis of Cutaneous Secondary Syphilis

There are forty skin diseases which may mimic or be mimicked by secondary syphilis. These range from such common conditions as ringworm, boils, pityriasis rosea, hives (urticaria), and the itch (scabies), to such rare ones as smallpox, leprosy, and pityriasis lichenoids chronica. A list of these are as follows: Acne vulgaris, seborrheic dermatitis, pityriasis rosea, tinea versicolor, measles, scarlet fever, typhoid fever, toxic erythema, maculo-anesthetic leprosy, erythema multiforme, urticaria, leukoderma, chloasma, psoriasis, scabies, arsenical keratosis, varicella, dermatitis venenata, pyoderma, ecthyma, arsphenamine dermatitis, variola, pityriasis lichenoids chronica, lichen planus, papular tuberculides, nodular leprosy, eczema (palmar) lichen scrofulosorum, pityriasis rubra pilaris, keratosis pilaris, lichen spinulosis, dermatophytosis (ringworm), impetigo contagiosa, granuloma annulare, acne cacheticorum, acne scrofulosorum, acne necrotica, gumma, furunculosis and yaws.

For any general practitioner, therefore, or any physician no matter what his specialty, unless he has special dermatologic training, the only safe rule in diagnosis is to disregard entirely the niceties of clinical diagnosis and to suspect secondary syphilis in any patient with a generalized skin eruption, no matter what its duration or appearance, and to test the suspicion by an immediate serologic test of the blood.

Oral Lesions

Trivial lesions about the mouth lists twenty-three diseases of the buccal mucosa with which secondary syphilis may be and often has been easily confused.

The list of diseases commonly confused with secondary syphilis about the female genitalia is less lengthy and less formidable, but includes such common and simple conditions as herpes progenitalis, trauma (abrasions), anal fissure, hemorrhoids, scabies and venereal warts.

Alopecia

The hair loss of early syphilis is patchy, moth eaten, worse in the hair margins of the scalp, but usually involves all body hair as well.

Ocular Lesions

The common ocular lesions of secondary syphilis are iritis (incidence about 5 per cent) and neuroretinitis (incidence about 1 per cent). Except in the case of iritis papulosa, there is nothing distinctively syphilitic about the appearance of either of these. Syphilis is responsible for from 10 to 70 per cent of all cases of iritis, and about 30 per cent of all cases of neuroretinitis.

Lesions of Bones and Joints

Involvement of the bones and joints in early syphilis is far more common than is generally supposed. Symptoms are more important than signs. The usual manifestations are: 1. Osteocopic pains, often nocturnal, involving the shafts of all the long bones. Localized tender areas may be present on palpation though no other abnormalities are obvious. 2. Arthralgia—dull aching and stiffness of the joints, large and small, worse at night or in the morning. There are no objective or X-ray changes. 3. Hydrarthrosis, usually involving the knees and ankles. No X-ray changes. 4. Actual acute periostitis (commonest in the tibia) in which, owing to its acuteness, X-ray changes are at first absent.

The Diagnosis of Latent, Prenatal and Congenital Syphilis

By definition, latent syphilis is hidden syphilis. Latency begins with the healing (spontaneous or under the influence of inadequate treatment) of early syphilis, and extends for a variable period of time, ranging from a few months to a lifetime. The essential clinical facts regarding it are summarized as follows: 1. All syphilitic infections are latent (a) at some time, (b) most of the time until ultimate break-down; 2. Latent syphilis is not recognizable clinically. 3. The diagnosis can only be made by serologic tests.

At any given time at least one-third of all patients with syphilitic infection are in the stage of latency. There is no way to recognize latent syphilis except by serologic tests. In latency, as at other stages of the infection, modern serologic tests are from 90 to 95 per cent efficient in detecting untreated latent syphilis.

Prenatal Syphilis

What has been said about the diagnosis of latent syphilis applies with double force to prenatal syphilis and the prevention of congenital infections. The fact that pregnancy is good for syphilis is emphasized by the complete absence of clinical evidence of infection in many pregnant syphilitic women. In the vast majority of them, syphilis cannot be recognized even by the most expert observers, except by a routine serologic test of the blood.

The justification of such routine serologic testing of all pregnant women, whether private or clinic patients, lies here and in the corollary that when syphilis in the pregnant woman is recognized early enough, syphilis in the child can be prevented with nearly absolute certainity.

Congenital Syphilis

With so many mothers recognized as syphilitic and receiving some treatment during pregnancy, outspoken clinical evidence of infantile congenital syphilis is becoming increasingly rare, and the recognition of syphilis in the infant more and more a problem of laboratory diagnosis. The fundamental steps in the recognition of early congenital syphilis are: 1. Suspect every baby of a known syphilitic mother, whether or not treated before or during pregnancy. 2. In babies, suspect syphilis in (a) puny, ill-nourished, wizened, "won't gain" infants, (b) skin rashes of any type, (c) snuffles, (d) "pseudoparalysis".

The Diagnosis of Late Syphilis or Tertiary

Late, or tertiary syphilis may attack any part of the body. It is obviously impossible, without far exceeding the bounds to consider all possible lesions, as 95 per cent of all patients with late syphilis develop lesions in one or more of six systems, the mucocutaneous structures, the bones and joints, the liver, the heart and aorta, or the nervous system characterized as: 1. solitary or few lesions; 2. asymmetry; 3. induration, deep palpable infiltration; 4. indolent, low-grade inflammatory processes; 5. arciform polycyclic borders forming segments of circles, both in individual lesion and in configuration of groups; 6. sharp margination, "punched out" ulcers; 7. tissue destruction and replacement with or with ulceration; 8. central or one-sided healing with peripheral extension; 9. superficial, atrophic, noncontractile scar with arciform configuration or original lesion; 10. persistent peripheral hyperpigmentation.

Neurosyphilis

In the neurologic domain, diagnostic confusion between syphilis and other diseases is more frequent than at any other stage of the infection. Four non-syphilitic diseases may closely mimic acute syphilitic meningitis; seventeen other conditions may be clinically indistinguishable from the catch-basket manifestations of late meningovascular neurosyphilis.

Summary

The average physician does not have equipment to permit him to recognize all the varied manifestations of syphilis which may fall within his practice. He

can remedy this deficiency, if he will, by (a) keeping constantly in mind the fact that syphilis is a prevalent disease, (b) remembering to what extent syphilis may imitate or be imitated by many other diseases, (c) familiarizing himself with the names of those diseases causing most diagnostic confusion, (d) suspecting syphilis when he is confronted with any of these diagnostic possibilities, (e) recalling that modern serologic tests are 95 per cent efficient in the diagnosis of untreated syphilis, and (f) checking his clinical suspicion by a serologic test of the blood.

These statements apply not only to the general practitioner, but also to the specialist, particularly when the patient presents symptoms and signs outside his special field of interest.

Modern serological tests are 99.75 per cent specific for syphilis and 95 per cent sensitive in untreated cases.

Professional Building.

CERVICAL DYSTOCIA.*

ALBERT T. WALKER, M.A., M.D.,
Portsmouth, Virginia.

Many of our modern text-books on surgery, obstetrics and medicine are illustrated with wood-cuts and other obsolete illustrations borrowed and reprinted through the years from the original work of our medical ancestors. These same books are replete with ideas and suggest practices and procedures which have remained unchanged over many years in the face of progress and of experience to the contrary. And so, this evening, I have chosen to speak a few moments on one of the wood-cuts of obstetrics —cervical dystocia.

This subject seems to me to be a very important one not so much because of its academic interest as of its practical implications. Many Cæserean sections and other operative procedures are being done throughout the country because of a so-called cervical dystocia. A sound knowledge of the structure of the cervix and pelvic floor and their supports and of the mechanisms and forces of labor would diminish the fear inspired by a slowly dilating cervix and result in a decrease in operative interference in normal labors.

Let us review for a moment the histology of the cervix and the mechanism of cervical effacement and dilatation. The cervix is composed of a stroma of interlacing fibers of smooth muscle tissue and connective tissue arranged in concentric layers enclosing varying numbers of glands lined by a high mucoid type of epithelium. The lining of the cervical canal contains numerous racemose glands lined by a high columnar epithelium of the mucoid type which dip deep into the stroma. The canal itself is lined by a layer of columnar epithelium which fades into the squamous type at the vermilion border to form the portio vaginalis.

At about the internal os and for a short distance cephalad and caudad the cervix is suspended and partially fixed to the lateral and interior pelvic walls by the cardinal ligaments, the pubo cervical fascia and other structures of the pelvic floor. These form a more or less fixed point which together with the cervical stroma form a smoothly operating mechanism which reaches the acme of its function in effacement and dilatation during labor.

The mechanism and forces of labor involved in cervical effacement and dilatation are the downward thrust of the amniotic sac and its contents against the fixed point and the passive cervix with slipping of the cervical musculature cephalad over the presenting membranes or fetal part. As the uterus contracts and wedges the forewaters or head further into the cervical canal, the canal continues to become thinner in its lateral diameter by the slipping of the smooth muscle fibers up along the lateral wall of the uterus to form the lower uterine segment. Complete effacement results in a cervix of paper thickness. The external os at this time is still present and may be outlined as a thin tense membrane, often only sufficiently enlarged to admit one or two fingers. At this point the cervix is said to be effaced, and then opening or dilatation takes place. It is easily seen that such a cervix does not offer any obstruction to labor, so when we speak of the failure of the cervix to dilate we ordinarily mean failure

*Read before the Norfolk County Medical Society.
From the Department of Obstetrics, Norfolk Naval Hospital, Portsmouth, Va.

of the cervix to efface. The mechanism of cervical effacement and dilatation are not comparable to the opening of a shutter or enlarging of a rigid canal but they occupy two stages, the first leading to a complete effacement of the canal by slipping of the muscular fibers cephalad to form the thin lower uterine segment, and the second the dilating or opening of this very thin cervical musculature by spreading of the few remaining fibers. If these fibers of the thinned-out cervix do not slide easily they will be torn apart by the force of the uterine contractions transmitted through the presenting part, resulting in cervical lacerations. Misdirected attempts at manual enlargement of the cervix at this stage also result in deep or superficial cervical lacerations.

When we approach the subject from this standpoint, we see there is very little chance of the cervix arresting the passage of the presenting part. Even cervices with healed or unhealed lacerations with resulting scar tissue offer no special problem if we simply remember the physiology of cervical effacement and dilatation.

What I have said of lacerated and scarred cervices applies equally to the primiparous cervix. Failure of effacement and dilatation of the rigid primiparous cervix is common indication for delivery by abdominal section. My feeling is, and experience has borne this out, that uterine inertia is usually the cause of failure of the cervix to become effaced and that just as soon as the parturient woman develops adequate uterine contractions the canal will become effaced and will open regardless of the condition of the cervix.

This very slow effacement of the primiparous cervix is a rather common experience to all of us and is of great practical significance. What are we going to do when faced by a patient having frequent and annoying uterine contractions who is making no progress toward cervical effacement? If there is no disproportion, abnormal presentation, or other obstruction to labor, and we can aid the forces of labor to the point of producing adequate uterine contractions, the cervix will efface and open. This may best be accomplished by providing rest and nourishment for the parturient woman. She should not be allowed to tire herself but should be placed at rest either with morphine, sodium pentobarbital or some other suitable sedative. We have found sodium pentobarbital, grs. four and one-half to six, given by rectum, to be very satisfactory in the majority of cases. If necessary, this can be augmented by the hypodermic injection of morphine, grs. 1/8 to 1/6.

Nourishment can best be given in the form of carbohydrates which help build up the glycogen reserve and increase the tone of the uterine muscle as well as the rest of the body muscles. Orange juice with karo corn syrup, 100 grams to 1,000 c.c., is an excellent way of providing carbohydrates. We make it routine to supply our parturients with carbohydrates by giving them orange juice fortified with karo throughout labor. Another excellent source of carbohydrates is hard candy such as one buys at the grocery store in glass bottles. If nausea prevents the taking of food by mouth, we occasionally resort, after sedation, to intravenous glucose 10 per cent in Ringer's solution, to provide the fluid and carbohydrates necessary to carry the patient through a long labor. Surprisingly enough after such a regimen, on waking, the patient will usually start active labor with uterine contractions of adequate duration and intensity to efface the cervix and insure successful termination of the labor from below. In fact, we frequently find that the cervix will become effaced while the patient is sleeping, and on waking her labor progresses and terminates very rapidly.

From the foregoing remarks it will be seen that we feel that the cervix is a very rare cause of dystocia. It is perfectly true that an occasional case of true cervical stenosis may offer sufficient obstruction to prevent the passage of the fetal head even in the presence of adequate contractions but such a condition is exceedingly rare. The condition usually encountered and considered as dystocia due to a rigid cervix is, in reality, either a failure of cervical effacement due to uterine inertia with contractions of insufficient intensity and length to fulfill their physiological function, but of sufficient severity to be very annoying to the patient, or abnormal presentation such as occiput posterior. Supportive treatment for the patient with rest induced by sedatives and nourishment in the form of easily assimilable carbohydrates usually results in a spontaneous termination of the labor provided there is no disproportion or other obstruction to the passage of the fetus down the birth canal. Occiput posterior presentation should, of course, be handled conservatively and if diagnosed early in labor will alleviate any cause for alarm at a long labor with a slowly dilating cervix.

Cæserean section should be reserved for the very rare case of congenital abnormality or post-operative stenosis in which the cervical outlet is not available as a passage for the fetus. If the indications for operative interference are sufficiently rigid, there will be very few abdominal sections indicated for the so-called rigid cervix.

This short paper is presented as a plea for more conservatism in conducting protracted labors in which there is no other reason for interference than a rigid cervix. The policy of watchful waiting, coupled with intelligent conservation of the patient's carbohydrate reserve and fatigue level, should govern the conduct of labor in this class of patients.

FUNCTIONAL GASTRO-INTESTINAL DISEASE.*

H. G. HUDNALL, M.D.,
Covington, Virginia.

The functional gastro-intestinal patient exists under many different labels such as the chronic gastro-intestinal invalid, irritable colon, unstable colon, nervous indigestion, G. I. vagotonia, and other similar terms. In the office practice of the general practitioner and internist, these patients will constitute a larger percentage than any other type of chronic complainer. I believe most medical services in institutions will agree with this incidence.

In spite of this high numerical number, it is my feeling that these patients do not receive adequate investigation into the emotional stresses or the proper instruction. After Roentgenological studies have been completed and no organic lesions found, we are too prone merely to hand them a simple diet list and a prescription for a sedative with belladonna and wish them well—a wish which never materializes.

After briefly mentioning the symptoms and physical findings, it is my intention to outline what may be done for these distressed people.

The symptoms are manifold and quite bizarre, however the great majority will complain of anorexia. Some have a capricious appetite. Practically all will complain of abdominal distention. Whether the distention is in the epigastric region or lower depends upon the degree of visceroptosias. Nausea is not uncommon but it is remarkable to note that vomiting is unusual. Many complain of distress over the cecum. Constipation is the rule. A small number will have alternating constipation and diarrhea. The stools are fragmentary and may contain mucus. All will complain of lethargy or fatigue and other symptoms common to the psycho-neuroses.

The physical findings are quite uniform. The physique is asthenic or leptic and atonic in type. Adams or Boston describes the gastro-intestinal invalid as entering your office—abdomen first, nose second and chest last. The expression is apprehensive and the mental attitude is one of much concern. The flow of speech is voluminous and concerns only their many complaints. The stomach is found to be low by percussion. If difficulty is encountered in percussing the position of the stomach, this may be remedied by having the patient drink a glass of water. The position of the stomach may then easily be elicited. The descending colon is easily palpable as a small fibrous cord and has a ropy feeling. Pressure over this spastic colon elicits pain. Tenderness is also encountered over the engorged cecum. A lamentable number will exhibit appendiceal scars—the work of an over-enthusiastic surgeon who removed the "chronic appendix". Still more horrifying is the near-by second scar, which represents the portal of entry for the "breaking up of adhesions".

X-ray studies reveal a low hanging, fish-hook stomach. The small intestine is frequently packed down in the pelvis. The cecum is found to be engorged. The transverse colon sags in a hammock fashion. Spasticity of the descending colon and sigmoid is a very consistent finding.

The diagnosis is not difficult. One suspects the condition after talking with the patient for five minutes, feels certain after a longer history, and proves it by X-ray studies.

The most effective therapeutic weapon is a good history. It is from the history that the patient's daily schedule is determined and from it one is able to make adjustments for the patient. This should be explained more in detail. The usual hospital history sheet has a caption labeled "Habits" and another captioned "Present Illness". After "Habits" one has about four lines which contain some such useless

*Read before the Medical Association of the Valley of Virginia in Staunton, Va., September 29, 1938.

remark as "three cups of coffee, fifteen cigarettes daily and alcohol in moderation". This should be made the important part of the history. It should contain an hour by hour report of the events in the G. I. patient's daily life. It must relate the hour of arising, the speed at which he dresses, consumes breakfast and rushes off to work. One must know the nature of the occupation and the daily tension and emotional drains that confront the patient. It is frequently found by such a history that the patient gets up at eight A. M., shaves and dresses, grabs a milk shake at the drug store and is in his office by eight-thirty. While there he is under constant tension, eats a sandwich for lunch, gets home about five-thirty, very tired, and then proceeds to consume a heavy meal on a tired, tense gastro-intestinal tract. After the evening meal comes the so-called recreation and social obligations which consist of entertaining and calling, bridge or poker, frozen salads, sandwiches, coffee, drinks and incessant smoking. Financial, domestic and sexual difficulties must also be searched for. With this information at hand the doctor should replan the patient's daily life in detail, showing him the adverse conditions under which he lives.

The patient must next be relieved of his phobias. He must be assured that no cancer or ulcer exists and that his condition results from the emotional stresses and strains. This is one class of complainer that should be told his trouble in a simple vivid manner; a diagnosis that he can visualize relieves his mind and is a therapeutic aid. A diagnosis of "nervousness and nervous indigestion" is not satisfactory to the patient. I also believe that such terms as "fallen stomach" and "fallen kidney" denote such terrible anatomical relationship in the patient's mind that the invalidism is apt to be prolonged. Patients never forget such terms.

Vacations are most helpful if not practical. The various spas and resorts owe their merit to an atmosphere of tranquility and leisure rather than to the charmed waters as once supposed.

The diet is of paramount importance but may be dismissed by saying that it should be a simple high caloric low residue diet. The patient should be given a printed list of foods permitted, and warned against the daily ingestion of bran or spinach which he has put himself to great precaution to eat for "the bowels". No water and not over one-half glass of liquids should be taken with meals. Fluids further depress the sag in the greater curvature of the stomach which delays pyloric emptying. This pool of static materials causes eructations and distention.

Drugs play a role but should be restricted to a minimum. A mixture of phenobarbital and belladonna after meals certainly takes some tension from the patient and the lower intestinal tract. Frequent sedatives in small quantities are preferable to stupefying doses each night. Of course the vitamins play a role in this disease too. A deficiency of vitamin A should give no concern, because milk and butter are given in large amounts. A deficiency of vitamin C may be prevented with orange juice. Vitamin B is indicated because of the generalized muscular atonia and the atonia of the upper G. I. tract. Alkalis are mentioned only to be condemned. The physiology of the stomach is such that the presence of an alkali stimulates the mucosa to secrete excess acid for neutralization purposes. The altered pH of the gastric contents is on an emotional basis and should be controlled as such. Higgins of The Cleveland Clinic claims that an alkaline urine plus a vitamin A deficiency predisposes to renal calculi.

An anti-constipation regimen should be instituted. Such a regimen may consist of mineral oil, night and morning. It is permissible to start with such a laxative as fluid cascara with the oil at the beginning and give it in gradually decreasing amounts until it is eventually eliminated from the schedule.

A convenient hour for evacuation should be determined by the patient and an attempt to have a bowel movement at this hour must be carried out daily until success is attained. If the patient goes two days without sucess from his efforts, an enema may be used. Eventually the enema and cascara will be unnecessary. If the urge for defecation is present and it does not conform to the selected hour, it should be postponed if possible. The patient should be informed at the onset that the elapse of a day without a bowel movement is of no great moment.

In closing, I wish to state that this discussion is intended as a plea for a better history and better regulation of our chronic dyspeptics. Handling patients in such a manner is certainly time-consuming, often requiring hours, and taxes the patience of the most even-tempered. The physician is well paid for his efforts though, as he witnesses them return to a state approximating normal. These people are most grateful.

Dew Building.

Correspondence

Treatment of Undulant Fever.

Staunton, Va.

April 4, 1939

TO THE EDITOR:

In the issue of the VIRGINIA MEDICAL MONTHLY, the official publication of the Medical Society of Virginia, Volume 66, No. 4, 1042, April, 1939, at page 243, under the heading, "Truth about Medicine," subheading, "Propaganda for Reform"—"Recent Developments in the Treatment of *Undulant* Fever", is the statement "The increased recognition and incidence of *undulant* fever has fortunately been associated with new and improved methods of treating this disease in both its acute and its chronic form."

Permit me first to suggest that all local, public and private laboratories be equipped with Huddleson's test for the early, quick and certain diagnosis of this disease. I have found this test most reliable in every instance, and have had it checked with the tests at the state laboratories. The diagnosis may be made almost immediately.

Second, permit me to caution against the use of the sulfanilamide remedies unless careful check of the blood and urine is made at least every day during the administration of these remedies. It is well to consider carefully in every instance the use of the Neo-Prontosil hypodermically or intramuscularly, instead of the per orem administration of sulfanilamide. This is a more efficient, more certain, and less toxic means for the administration of the drug.

I seriously advise the administration of the antimelitensis serum provided by Sharp & Dohme, Philadelphia. Recent intravenous use of this serum by the writer was attended by most gratifying results.

Caution in the administration of the serum is urged. Previous tests for any untoward effect or anaphylactic phenomena should be practiced. I suggest also (and I am of the opinion that this is of decided value) the per orem administration of a suitable dose of ephedrine before the serum is administered in every case. A solution of adrenalin should be available for instant use if serious evidences of anaphylaxis develop. It is thought that administration of the ephedrine previously to the intravenous administration of the serum is a wise and convenient precautionary measure.

MARSHALL J. PAYNE, M.D., F.A.C.S., F.I.C.S.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for March 1939 compared with the same month in 1938 follows:

	1939	*1938*
Typhoid and paratyphoid fever	17	11
Diphtheria	62	70
Scarlet fever	111	173
Measles	1,564	2,403
Meningitis	13	12
Poliomyelitis	0	5
Rocky Mountain spotted fever	0	0
Typhus fever	0	0
Undulant fever	2	0
Tularemia	0	4

VALUE OF PRENATAL CLINICS IN RURAL AREAS

Medical care in rural prenatal clinics now can be evaluated on the basis of available clinic reports. A preliminary estimate of the maternal mortality rate for the first two thousand consecutive clinic cases, involving medical services in all the rural clinics, indicates that the number of maternal deaths in this group was less by one-half than for the State at large. Of these cases, 52.4 were white and 47.6 colored.

The percentage of indigent patients referred to the clinics because of previous or existing pathology was unusually high. Consequently, a reduction of the maternal mortality rate in this general group appears to be significant.

To date, many more than two thousand patients have received service in the clinics. A more complete report of the results of this work will be prepared when further tabulations are possible. Obviously, the study of a larger group will make the conclusions more accurate.

However, the clinic experience to date confirms the well established fact that adequate prenatal care of itself can markedly reduce maternal mortality. When this care is followed by good obstetrical service at delivery even more satisfactory results will be obtained.

In addition to the direct service to patients, an important feature of the clinic activity is the education of the general public. Through demonstration of the results accomplished by proper prenatal care of indigents, many persons of higher economic levels

in the clinic areas are realizing more than ever the desirability of seeking such care from their own physicians. Assistance given by local women's organizations in the work of the clinics has largely been responsible for this reaction.

That the educational work is progressing is confirmed by statements of private physicians. In practically all rural areas in the State in which prenatal clinics for indigents have been regularly conducted for a year or more, private patients in increasing numbers are seeking prenatal care from practicing physicians.

In order that available scientific medical practices be more generally applied, the public needs continued education in the value of proper maternal care. This means that private physicians, health agencies, and others interested in this problem must continue their efforts for some time to come.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.
President-Elect—MRS. HENRY A. LATANE, Alexandria.
Corresponding Secretary—MRS. PAUL PEARSON, Aylett.
Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.
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Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

To Our Co-Workers!

The year is half spent, and October is fast coming on, and we have much to do!

The fine reports read at our Mid-Winter Board Meeting on the first day of March showed splendid work thus far—a firm foundation has been strongly laid and now to raise our structure on health lines, peace and good will needs but a united effort, and no slowing up!

Spring brings many pleasant reminders—this is the season to be up and doing great things, those that bring beauty to the eye, and health and happiness for the whole body. It also reminds us that this is the time to observe Doctor's Day. It is fitting that we should pause in our rush at least once a year and pay tribute to our Doctor's of yesterday and today. Be it said to our shame they are often denied the flower they so often crave while living, and the huge wreath bestowed in death does little to atone.

We shall always be grateful to that far-seeing Georgia woman in whose brain the idea was born. Doctor's Day arouses us to honor the profession present and past, to study and commemorate its promotion of human health and happiness through the ages, and through its observance to express our appreciation and respect and love for the members of the Medical Profession.

I feel perhaps no more fitting tribute might be paid our own Virginia Doctors than to expand the horizon of our Local Auxiliaries; so let's think together on Expanding the Horizon of our Auxiliaries.

These are serious times in many ways for every calling but especially for our profession. Our doctors face serious problems all the time—for what is more serious than the practice of medicine, or the art of surgery. Think if you please of the responsibility a physician has on his shoulders. Does not health and happiness and life itself depend upon his ability to diagnose a condition, to apply the specific remedy? To keep their nerves steady and their minds clear, can we not expand our thinking and have a big part in helping with this?

Let us never forget to them has been intrusted the almost devine art of healing the sick, ushering into the world a new life, and giving cheer to an earth-tired spirit. And because of this sacred trust that is theirs is it not our duty to encourage them and to lend every effort that they fit themselves for their work, and do all in our power to relieve them of unnecessary responsilities, that the science of medicine might be advanced?

We should with our years of experience as Doctors' wives do all we can to encourage, advise, and assist those who are fitted for practice, and forever drive from the fields of medicine and surgery those who are a nuisance to life and health and an insult to the noble calling. How may this be done—the opportunity offers itself as you take your place on health committees of P.T.A. organizations, Woman's Clubs, Home Demonstrations Clubs and your general contact with society.

May I urge you never lose an opportunity to warn others of the dangers of the quack, the cosmetic specialist who is ever in our land seeking those whom he may devour. The guest speaker at our recent board meeting in Richmond told of women who were spending their husband's hard earned cash, paying

as much as $2.50 a jar for cosmetic creams that, when analyzed contained exactly thirteen cents worth of ingredients—seven cents worth of some foundation cream, and six cents worth of perfume and other chemicals. We need then to expand our thinking and judgment.

We must be constantly alert and educate ourselves in order that we may spur our Doctors on to keep abreast of scientific research that those who are looking to them and to us for guidance in health problems may not be betrayed and that our doctors may be helped through our efforts.

May I dedicate this little rhyme I composed to all living Doctors today, and to the memory of those who have finished their work here and passed on to a larger field of usefulness. I have called it—

OUR CREED

For the Doctors, loved ones, friends
And all within our reach
We aim to have a healthier world
As we each other teach.

Our Auxiliary must lead in service
To carry forth this plan,
That clearer minds with justice
May join us heart and hand.

That health may be a leading force
To all with whom we work
Demands cooperation everywhere
And duty never shirk.

We need to study well the ways
That health laws be applied
And stronger children, yet unborn
May bless the plan we tried.

Then, "Laugh, and Love, and Lift"
As on through life we go,
The lines of old are still so true
"We'll reap just what we sow."

(MRS. HAWES) ELLIE COCKE CAMPBELL.

The Auxiliary to the James City Medical Society

Held its last meeting at the home of Mrs. E. B. Kilby, Toano, with nine members present. The president, Mrs. Fred Person, presided. During the business session, plans were discussed for a benefit movie to be given sometime in April. Following this, there was a social hour. The next meeting will be held at the home of Mrs. C. E. Holderby in Williamsburg.

The Petersburg Medical Auxiliary

Entertained at a tea on March 14, in the home of Mrs. Herbert C. Jones, for the nursing staff and the pre-clinical students of Petersburg Hospital. St. Patrick's decorations were used and the green and white color scheme was carried out. Mrs. Allen Barker, retiring president, and Mrs. Jones received the guests with other members of the Auxiliary. Mrs. Meade Edmunds and Mrs. F. J. Wright presided at the tea tables. A silver vase was presented by the Auxiliary to Mrs. Barker who was leaving to make her home in Roanoke.

The Auxiliary to the Northampton-Accomac Medical Society

Held its regular meeting on April 4 at "Stockley", the home of the State Vice-President, Mrs. Griffin W. Holland, at Eastville, with twenty-three members present. The Auxiliary was honored by having present Mrs. Hawes Campbell, State President, who was the guest speaker. A short business meeting was followed by a delightful program, consisting of a violin solo by Mrs. Polk Kellam, accompanied by Mrs. Wm. Lee Cosby; a reading "Some Facts Concerning a Few of the Doctors of Yesteryears of Northhampton and Accomac Counties" by Mrs. William Bullitt Fitzhugh and read by Mrs. J. Mortimer Lynch; songs by Mrs. John von Kesternen; a talk by Mrs. Campbell on "What Our Auxiliary Means to the Profession"; and a reading by Mrs. E. W. P. Downing. At the conclusion of this program, a social period followed with the serving of delicious refreshments.

Plans were made to entertain the physicians of the two counties at a joint picnic at "Wilkins Beach" in July.

The meeting was in charge of the President, Mrs. J. Fred Edmonds, of Accomac.

(MRS. HOLLAND) CATHERINE R. TROWER,
Chairman, Press and Publicity.

Radio Health Broadcasts.

May 3—*Healthier Babies*—Daily routine of the healthy baby; medical supervision; feeding.

May 10—*Healthier Mothers*—General advice for the expectant mother—good for girls and boys to know about.

May 17—*The Doctor's Workshop*—The place of the hospital in the health program of individual and community.

May 24—*Toddlers, 1939*—The preschool child and the health and personality problems of that age.

May 31—*Checking Up on Health* — Periodic health examination and what follows and why.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Eli Lilly & Co.
Ampoules Solution Liver Extract Purified, 1 cc.—Lilly 15 U.S.P. Units per cc.

E. R. Squibb & Sons.
Concentrated Antipneumococcic Serum—Squibb, Types V and VII.
Concentrated Antipneumococcic Serum—Squibb, Types IV and VIII.

The Upjohn Co.
Tablets Cinchophen, 5 grains.
Tablets Cinchophen, 7½ grains.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Antipneumococcic Serum, Refined and Concentrated, Types I and II.—An antipneumococcic serum (New and Nonofficial Remedies, 1938, p. 399) prepared by immunizing horses with intravenous injections of the virulent and avirulent cultures of type I and type II pneumococci. The serum is refined and concentrated by the method of Lloyd D. Felton. The concentrated product contains type I and type II pneumococcus antibodies. Sterility tests are carried out in the manner prescribed by the National Institute of Health and safety tests are carried out by injection into white mice and guinea pigs. The product is marketed in packages of one syringe containing 10,000 units each of type I and type II, and in packages of one syringe containing 20,000 units each of type I and type II pneumococci, each accompanied by a vial of dilute serum for the sensitivity test. The Gilliland Laboratories, Inc., Marietta, Pa.

Elixir Amytal, 2 grains per fluidounce.—Amytal (New and Nonofficial Remedies, 1938, p. 111), approximately 0.44 Gm. per hundred cubic centimeters, in a vehicle containing alcohol 30 per cent, glycerin, water and aromatics; methenamine, 2 grains per fluidounce, is present for the purpose of increasing the solubility of the amytal. Eli Lilly & Co., Indianapolis, Ind.

Elixir Amytal, 4 grains per fluidounce.—Amytal (New and Nonofficial Remedies, 1938, p. 111), approximately 0.88 Gm. per hundred cubic centimeters, in a vehicle containing alcohol 34 per cent, glycerine, water and aromatics; methenamine, 4 grains per fluidounce, is present for the purpose of increasing the solubility of the amytal. Eli Lilly & Co., Indianapolis, Ind. (*J. A. M. A.*, March 4, 1939, p. 843).

Epinephrine, U.S.P.—Upjohn.—Marketed in vials containing epinephrine (New and Nonofficial Remedies, 1938, p. 230) 0.065 Gm. (1 grain). Upjohn Company, Kalamazoo, Mich.

Solution Epinephrine 1:1000—Upjohn.—Each cubic centimeter contains epinephrine (New and Nonofficial Remedies, 1938, p. 230) 1.0 mg., sodium chloride 7.0 mg., sulfur dioxide (as sulfurous acid) not more than 0.6 mg., chlorobutanol not more than 5.0 mg., dissolved in distilled water saturated with carbon dioxide. It is marketed in packages of 1 cc. ampules and 30 cc. vials. Upjohn Company, Kalamazoo, Mich.

Procaine Hydrochloride—The Upjohn Co.—A brand of procaine hydrochloride — U.S.P. (New and Nonofficial Remedies, 1938, p. 74). The Upjohn Company, Kalamazoo, Mich.

Ampoule Solution Procaine Hydrochloride ½ per cent with Epinephrine, 5 cc.—Each cubic centimeter contains procaine hydrochloride, U.S P. (New and Nonofficial Remedies, 1938, p. 74) 0.005 Gm.; epinephrine, 0.05 mg.; sodium bisulfite, 1.6 mg.; benzoic acid, 0.06 mg.; sodium chloride, 8.5 mg.; normal hydrochloric acid, 0.0007 cc.; dissolved in distilled water and saturated with carbon dioxide. The Upjohn Company, Kalamazoo, Mich.

Ampoule Solution Procaine Hydrochloride 2 per cent with Epinephrine, 1 cc.—Each cubic centimeter contains procaine hydrochloride, U.S.P. (New and Nonofficial Remedies, 1938, p. 74) 0.02 Gm.; epinephrine, 0.05 mg.; sodium bisulfite, 2.6 mg.; benzoic acid, 0.3 mg.; sodium chloride, 8.3 mg.; normal hydrochloric acid, 0.0016 cc.; dissolved in distilled water and saturated with carbon dioxide. The Upjohn Company, Kalamazoo, Mich.

Ampoule Solution Procaine Hydrochloride 2 per cent with Epinephrine, 3 cc.—Each cubic centimeter contains procaine hydrochloride, U.S.P. (New and Nonofficial Remedies, 1938, p. 74) 0.02 Gm.; epinephrine, 0.05 mg.; sodium bisulfite, 2.6 mg.; benzoic acid, 0.3 mg ; sodium chloride, 8.3 mg; normal hydrochloric acid, 0.0016 cc.; dissolved in distilled water and saturated with carbon dioxide. The Upjohn Company, Kalamazoo, Mich.

Solution Procaine Hydrochloride 1 per cent with Epinephrine, 30 cc. Vials.—Each cubic centimeter contains procaine hydrochloride, U.S.P. (New and Nonofficial Remedies, 1938, p. 74) 0.01 Gm.; epinephrine, 0.02 mg.; sodium bisulfite, 2.1 mg.; benezoic acid, 0.2 mg.; sodium chloride, 8.4 mg.; normal hydrochloric acid, 0.00125 cc.; chlorobutanol, not more than 5 mg.; dissolved in distilled water and saturated with carbon dioxide. The Upjohn Company, Kalamazoo, Mich.

Solution Procaine Hydrochloride 2 per cent with Epinephrine, 30 cc. Vials.—Each cubic centimeter contains procaine hydrochloride, U.S.P. (New and Nonofficial Remedies, 1938, p. 74), 0.02 Gm.; epinephrine, 0.05 mg.; sodium bisulfite, 2.6 mg.; benzoic acid, 0.3 mg.; sodium chloride, 8.3 mg.; normal hydrochloric acid, 0.0016 cc.; chlorobutanol, not more than 5 mg.; dissolved in distilled water and saturated with carbon dioxide. The Upjohn Company, Kalamazoo, Mich. (*J. A. M. A.*, March 25, 1938, p. 1157).

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Editorial

Walter Reed Day.

Walter Reed Day, as the annual celebration of the Historical Section of the Richmond Academy of Medicine is now known, was observed with fitting exercises in the auditorium of the Academy on March 28. These exercises were preceded by a well attended dinner in the banquet hall of the Academy, a social feature which for several years has brought together the members of the Section and their wives for an enjoyable evening. The chairman, Dr. J. Shelton Horsley, presided. After the announcement of the acquisition by the Library Committee of John Clayton's *Flora Virginica* and John Mitchell's *Dissertatio Brevis de Principiis Botanicorum et Zoologorum,* the speaker of the occasion, Dr. Henry E. Sigerist, spoke in his usual delightful way on Leonardo da Vinci and Renaissance Science. Officers elected for the coming year were: Dr. W. B. Porter, Chairman; Dr. Randolph Wellford, Vice-Chairman; Dr. E. H. Terrell, Secretary. In the Board Room an exhibit on the history of Egyptian medicine portrayed its geographical and historical background, a few of its personalities, some of its significant features, its medical pantheon, as well as facsimiles of all the known medical papyri. Statuettes of the gods and other source material were displayed.

This annual event in the life of the Richmond Academy is becoming more popular every year. It is the expressed wish of the Richmond group that members of the profession elsewhere in the State who are interested in the history of medicine identify themselves with the Section and enjoy its annual celebration.

The Government Looks at Headache Powders.

The unceasing activity of the Government under the new Food and Drug Act is evidenced in recent measures taken to stop the widespread over-the-counter sale of preparations containing bromides and acetanilide. "B. C. Headache Powders," "Bromo-Seltzer" and "Stanback Headache Powders" are among the preparations alleged to be dangerous and to violate the new law. The seizure of large quantities of these commonly sold "pain killers" is but the first step in a court procedure in which Federal agents will undoubtedly attempt to show that bromides and acetanilide in the doses recommended in these proprietary preparations are decidedly dangerous. A sufficient number of cases of poisoning can be assembled from any general hospital to prove the Government's position.

The medical profession applauds such activities. We only wish they could be multiplied a thousand-fold. The array of patent medicines on shelf and counter which greet the patron of the present day apothecary shop is a continuing affront to scientific medicine and an insult to the ancient art of phar-

macy. In the campaign which laymen are now conducting to help medicine set its house in order too little account has been taken of this change which has come over the honorable profession of pharmacy. In a socio-economic new deal which embraces the medical care of the American people, serious consideration must be given to the fact that annually 360 million dollars are spent in this country for patent medicines, some of them worthless, some of them dangerous, most of them bought in ignorance and, until recently, sold without fear of serious legal restriction.

Blue Spit.

Like spring, with perennial freshness and renewed vigor, the Virginia Tuberculosis Association once again revives the interest of the medical profession of the State in the early diagnosis of a disease once characterized as the Captain of the Men of Death. The activities of the Association are a source of endless wonder to those interested in preventive medicine and the mass attack upon disease. The phenomenal success achieved in this particular instance is due not only to the way in which the early pioneers captured the imagination of the public, and to the funds which poured into the coffers of the Association, but to the happy results which have followed systematic education and the application of known laws of communicability and arrest.

There are many other diseases, such as heart disease, cancer, infantile paralysis, rheumatic fever, pneumonia and malaria, clamoring for the same sort of attack, and yet none of them has made quite the same appeal as has the anti-tuberculosis campaign. Yet, in spite of all their success, those at the helm are continually having to din into our ears the slogan that the failure to make an early diagnosis is the outstanding barrier to the more complete control of tuberculosis. Physicians are urged to increase the index of suspicion in thinking of this disease.

It seems to us that it is equally important to continue the education of the people and to extend it if possible. In Massachusetts it has been shown recently that almost a third of the sufferers from chronic disease who do not secure medical care fail to do so because they do not know where to find it, or are ignorant of the nature of the facilities that exist, or are the victims of quackery and fraud. The barrier to successful control of disease is greater from the educational than from the economic standpoint. Much has been done to scare people into seeking medical help. Some of this fear propaganda cannot be viewed without criticism. But there is certainly truth in an observation long since made that our problems with tuberculosis would be simpler if the color of its sputum were a bright and astonishing hue—blue for instance.

The Émigré Problem.

To America, the free and tolerant, many physicians oppressed in other lands have recently emigrated. From Germany, Austria and Italy more than 3,000 have come and there are prospects of 2,500 more. Most of these émigrés are now on the Eastern Seaboard, congregated especially in Boston and New York. Here they have created an acute problem to the solution of which a committee, headed by Dr. David Lynn Edsall, Dean Emeritus of Harvard Medical School, has addressed itself.

The Committee has attempted to clear away a spirit of antagonism which exists in certain quarters where there is distrust of the medical education and medical ethics of the newcomers, and fear of their competition in a field already believed to be overcrowded. To arrest what the Committee calls a chauvinistic and nationalistic agitation, it is pointed out that a substantial proportion of the physicians are among the most talented members of the profession, that they are especially anxious to avoid competition with American physicians and as a class are neither aggressive nor self assertive. The Committee hopes that the congestion in the cities of Boston and New York may be relieved not only by placing certain specialists from among this group in positions of usefulness in our American medical colleges, but by distributing the larger number into certain parts of this country, particularly rural areas, where physicians are not now practicing. It is indicated that a number of émigrés are anxious for just this sort of general practice.

The work of the Committee might not be any harder than it seems at first glance, but for the fact that already forty-two states in this country have taken legislative action excluding these physicians from practicing in them. It is hoped that in the remaining six states the doors will remain open and that in some of these already closed ways may be found to permit the absorption of these homeless ones by the profession. The whole subject needs intelligence not emotion for its solution.

Proceedings of Societies

The Southwestern Virginia Medical Society

Held its annual Spring meeting in Bristol, April 13, 1939, with the President, Dr. H. W. Bachman, presiding. The afternoon sessions, held at the General Shelby Hotel, included the following papers: Some Spleen Cases—Dr. Alfred P. Jones of Roanoke; The Relation of Degenerative Disease to Industrial Efficiency—Dr. William K. Vance, Jr., of Bristol; Hemangioma of the Vertebrae—Dr. F. H. Smith, of Abingdon; Carcinoma of the Cervix Uteri—Dr. Wright Clarkson, of Petersburg; and Group Medical Service for Farm Security Families —Dr. F. V. Meriwether, Assistant Medical Director of the Farm Security Administration.

Fifty members in attendance for the evening session heard Dr. Frank L. Apperly, Professor of Pathology, Medical College of Virginia, Richmond, give an address on "Pathological Physiology of the Kidney".

The Society accepted the proposal of the Farm Security Administration for the medical, surgical and hospital care of 1,100 families in Southwestern Virginia receiving aid from the Administration.

New members received at this meeting are: Dr. William R. Bishop of Front Royal; Drs. Eldridge C. Simmons, W. A. Barker, A. D. Shapiro and William L. Sibley of Roanoke; Dr. J. A. Wagner of Bland; Dr. J. A. Wolfe of Abingdon; and Dr. Erwin S. Berlin of Rural Retreat.

JAMES P. KING, *Secretary.*

The Medical Society of Northern Virginia,

At its meeting on April 11, elected Dr. O. W. Carper of Front Royal as president, Dr. R. W. Stoneburner of Edinburg as vice-president, and reelected Dr. J. E. Harris of Winchester as secretary-treasurer, an office he has held for a number of years. New members elected are: Dr. James T. Rountree of Front Royal, Dr. F. W. Gearing of Woodstock, and Dr. M. J. W. White of Luray.

The Northampton County Medical Society

Met on April 10th, at which time Dr. I. C. Riggin, State Health Commissioner, was guest speaker and talked on the subject of clinics. Dr. H. L. Denoon was appointed to represent the Society on the State Cancer Committee. Delegate and alternate were also named for the meeting of the State Society in Richmond in the fall.

This Society, in cooperation with the County Board of Health, is conducting four venereal disease clinics in the county.

Dr. W. J. Sturgis is president and Dr. W. Carey Henderson is secretary. Both are of Nassawadox.

The Roanoke Academy of Medicine

Held its regular monthly meeting on April 3. Dr. Joseph E. J. King, Director, Neuro-Surgery, New York Polyclinic Medical School and Hospital, spoke on "Epidermoids Involving the Skull". His talk was illustrated with lantern slides. Dr. Hugh H. Young, Professor of Urology at Johns Hopkins Hospital, gave a talk on "Medical and Surgical Problems of the Prostate of General Interest". Motion pictures in color and lantern slides were shown in connection with this.

The usual social hour followed. Dr. W. W. S. Butler is president and Dr. A. C. Davis, secretary.

The Patrick-Henry Medical Society

Held its regular quarterly meeting at the Henry Hotel, Martinsville, on Friday, April 14 at 7:00 P. M. This meeting was had at this time so as to coincide with the last meeting of the postgraduate course in Internal Medicine which the society had been having for the past five weeks. Dr. Staige Blackford of the University of Virginia addressed the Society on "Gall Bladder Disease and its Management".

Dr. John A. Shackelford and Dr. R. H. Walker, both of Martinsville, are president and secretary-treasurer, respectively.

Lynchburg Academy of Medicine.

The regular meeting of the Academy was held April 3 in the Elks' Club, Lynchburg, with the President, Dr. S. E. Oglesby, presiding. Dr. C. E. Keefer is secretary.

Mr. John Buck, psychologist at State Colony, Virginia, was elected to associate membership.

Dr. A. I. Dodson, Professor of Urology, Medical College of Virginia, Richmond, appearing as guest speaker, presented a very illuminating and thorough paper on "Medical Management of Urinary Calculi."

Dr. R. V. Funsten, University of Virginia, was announced as next guest speaker. His subject will be "Low Back Pain."

Medical Association of the Valley of Virginia.

At the last meeting of this Association, the following officers were elected: President, Dr. Frederick Gochnauer of Upperville; vice-presidents, Dr. Joseph L. Wright of Harrisonburg and Dr. William P. Gilmer of Clifton Forge; treasurer, Dr. H. G. Middlekauff of Weyers Cave; and secretary, Dr. Harold W. Miller of Woodstock.

The James River Medical Society

Held its regular meeting at Cumberland, April 12, with Dr. J. Morrison Hutcheson of Richmond, guest speaker, giving a talk on pneumonia. There was a good attendance of members and visitors from nearby places. This Society, which is composed of doctors from Buckingham, Cumberland and Fluvanna Counties, holds quarterly meetings, the next of which will be on July 12 at Arvonia. Dr. J. H. Yeatman of Fork Union is president, Dr. Nash P. Snead of Cartersville, vice-president, and Dr. E. J Haden of Ore Bank, secretary-treasurer.

The Amelia County Medical Society,

A unit of the Fourth District Medical Society, held its annual meeting at Amelia Court House on April 18. Dr. James T. O'Neal was elected to membership and Dr. James McLean Rogers, formerly of Amelia but now a medical missionary to Korea on furlough in the States, was voted to non-resident or associate membership. Dr. J. M. Habel of Jetersville was elected president and Dr. James L. Hamner of Mannboro was re-elected secretary-treasurer. Delegate and alternate to the Richmond meeting of the State Society were also named.

The Norfolk County Medical Society

Held its Annual All-Day Clinic on April 12, at St. Vincent's Hospital. The morning and afternoon were taken up with clinics and reports by the members of the Society. Following dinner at the Town Club, an address was delivered by Dr. Henry M. Thomas, Jr., Visiting Physician to Johns Hopkins Hospital, Baltimore.

News Notes

Richmond Meeting, Medical Society of Virginia.

Following some of the suggestions received through the questionnaires sent members the first of the year, the Program Committee of the Society has decided to have a third guest speaker at the Richmond meeting, October 3-5, in addition to the two usually invited by the President. Other innovations planned are to shorten sessions generally, to have the Council meeting on Tuesday afternoon instead of in the forenoon as previously, and the first meeting of the House of Delegates that evening at 7:30 p. m.

The general and scientific sessions are scheduled to open on Wednesday, the 4th, at 10:00 a. m., at which time the President, Dr. Alex F. Robertson of Staunton, and one of his guests will speak. There will be medical and surgical sections in the afternoon. Wednesday evening has been set aside for alumni and special society dinners and meetings, so there will not be the rush to get back to meeting halls as has been the case with luncheon meetings.

The sessions will start at 9:30 on Thursday, and will include a guest and papers by three members. Beginning at 2:30, there will be a third guest speaker and round table discussions will follow. By deferring the subscription dinner and entertainment to Thursday evening, it is hoped there may be a sustained interest throughout the meeting instead of the dwindling number usually present at the closing session.

The Program Committee is much interested in having this meeting appeal to the membership generally and counts on the cooperation of each one.

The Virginia Obstetrical and Gynecological Society

Held its annual travel meeting in Boston on April 3 and 4, with the president, Dr. C. J. Andrews of Norfolk, presiding. Besides Dr. Andrews, those attending were Drs. M. B. Savage and P. E. Thornhill of Norfolk, Dr. Waverly R. Payne of Newport News, Dr. T. J. Williams of the University of Virginia, and Drs. Wm. Bickers, W. H. Evans, M. P. Rucker, H. H. Ware and J. M. Whitfield of Rich-

mond. These doctors were guests of the Harvard Medical School on Monday, attending clinics by Dr. F. C. Irving and his staff at the Boston Lying-In Hospital. On Tuseday morning, they attended clinics at the Free Hospital for Women, conducted by Dr. Frank Pemberton and his staff, and that afternoon they were guests at Dr. Louis Phaneuf's clinics at Carney Hospital. This travel meeting was most instructive as well as enjoyable.

American Medical Association.

The official call has been issued for the ninetieth annual session of the American Medical Association, to be held in St. Louis, from Monday, May 15 to Friday, May 19. The House of Delegates will convene on the 15th and the scientific assembly will open with the general meeting on the 16th, at 8:30 p. m. The various sections will begin on the 17th.

News from the Medical College of Virginia.

Dr. Lewis E. Jarrett, Director of the Hospital Division, attended the Southeastern Hospital Conference in Jacksonville, Florida, April 13-15. He gave a paper on "Essential Points in Hospital Construction and Maintenance".

Dr. Frank L. Apperly, Professor of Pathology, attended the meeting of the Southwestern Virginia Medical Society at Bristol, on April 13. He spoke on the "Pathological Physiology of the Kidney".

The American Society of Bacteriologists and Pathologists met in Richmond April 5-6-7, the college acting as host. Dr. Frank L. Apperly, professor of pathology, and Dr. Frederick W. Shaw, professor of bacteriology, were in charge of arrangements for the meeting.

President Sanger attended the annual meeting of the Roanoke Alumni Chapter on March 29, speaking on the present construction program of the college and its future outlook.

Contract for the general construction of the new hospital building has been awarded J. Slotnik Company of Boston, Massachusetts, in the amount of $929,500.00.

The John and Mary R. Markle Foundation of New York has made an appropriation of $3,000.00 for studies of liver poisons in the department of biochemistry. This research project is under the direction of Dr. J. C. Forbes, associate professor of biochemistry.

As a memorial to her son, Dr. Benjamin Hodges Frayser, a loan fund for medical students in the amount of $2,000.00 has been established here by Mrs. Annie R. F. Frayser of Norfolk.

Dr. Morris Fishbein, Editor of *The Journal of the American Medical Association,* was the guest of the college on April 21. Dr. Fishbein addressed the student body at noon, the program being held in the old First Baptist Church. This is the first time the property has been used since its acquisition by the college.

Dr. Harry Bear, dean of the school of dentistry, was elected president of the American Association of Dental Schools at its sixteenth annual meeting in Cleveland last month.

A tumor clinic has been established as a regular unit of the outpatient department of the college. The clinic is under the direction of a committee composed of Dr. George Zur Williams, associate professor of pathology, as director; Dr. I. A. Bigger, professor of surgery; Dr. Frederick B. Mandeville, professor of radiology; Dr. Randolph H. Hoge, assistant professor of surgery; Dr. Benjamin W. Rawles, Jr., instructor in surgery; with Dr. Lewis E. Jarrett, Director of the Hospital Division, and Dr. Frank L. Apperly, professor of pathology, as ex-officio members of the committee. This clinic will enable indigent patients to secure diagnostic and therapeutic treatment. For the present it is planned to hold the clinic three times a week. Dr. James Ewing, Director of the Memorial Hospital for the Treatment of Neoplastic and Allied Diseases, of New York, met with the staff members at the meeting for organization and set up of the new clinic.

Dr. W. T. Sanger, President, attended the Duke Centennial celebration April 21-22.

News from University of Virginia, Department of Medicine.

On March 14, Dr. John Moyer Meredith addressed the Postgraduate Clinic sponsored by the Patrick Henry Medical Society, meeting at Martinsville. His subject was Headache.

Dr. J. Edwin Wood spoke before the Raleigh County Medical Society, meeting at Beckley, West Virginia, on March 16. He discussed Recent Studies in Experimental Hypertension and Their Relation to the Treatment of Clinical Hypertension.

Dr. Fletcher Woodward presided at the scientific meetings for Nose and Throat of the American College of Surgeons in Baltimore on March 16.

On March 24, Dr. H. B. Mulholland delivered the third lecture in a Postgraduate Course in Internal Medicine in Alexandria, under the auspices of the Division of Extension of the University of Virginia. He spoke on Acidosis, Alkalosis and Dehydration.

Dr. W. W. Waddell addressed the University of Virginia Medical Society on March 27 on the subject The Effect of Vitamin K on the Prothrombin Time and Clotting Time in the Newborn, with Special Reference to Unnatural Bleeding in the Neonatal Period.

On April 4, Dr. C. C. Speidel addressed the New York University Chapter of Sigma Xi on Living Tissues in Action. His talk was illustrated with motion pictures.

On March 31, Dr. Staige D. Blackford delivered the fourth lecture in a Postgraduate Course in Internal Medicine in Alexandria, under the auspices of the Division of Extension of the University of Virginia. His subject was Nutritional Diseases and Their Treatment.

Dr. David Russell Lyman, of Wallingford, Connecticut, addressed the University of Virginia Chapter of Alpha Omega Alpha on April 11. He discussed Some Aspects of Medicine Not in The Citadel.

Dr. H. B. Mulholland addressed the Postgraduate Clinic sponsored by the Patrick Henry Medical Society, meeting at Martinsville on April 4. His subject was Pneumonia.

On April 5, Dr. L. T. Royster gave two addresses before the Gill Graduate Clinic in Roanoke. He spoke on The Diagnosis and Treatment of Laryngeal Diphtheria and on Ear, Nose and Throat Infections as Related to Pediatrics.

News from Duke University School of Medicine.

On March 24 and 25, a Postgraduate Clinic on the Management of Syphilis, under the sponsorship of the North Carolina State Board of Health and Duke University was held. The following speakers appeared on the program: Dr. John H. Stokes, of the University of Pennsylvania School of Medicine; Dr. Harold N. Cole, of Western Reserve University School of Medicine; Dr. W. P. Richardson, District Health Officer, Chapel Hill, N. C.; Dr. Wm. deB. MacNider, of the University of North Carolina School of Medicine; Dr. Joseph Earle Moore, of the Johns Hopkins University School of Medicine; Dr. Paul O'Leary, of the Mayo Clinic; Dr. Roy Norton, of the University of North Carolina School of Public Health; Dr. Carl V. Reynolds, of the North Carolina State Board of Health; Dr. R. A. Vonderlehr, Assistant Surgeon General, Chief, Division of Venereal Diseases; Dr. Norman R. Ingraham, of the University of Pennsylvania School of Medicine; Dr. P. C. Jeans, of the University of Iowa School of Medicine, and Dr. E. R. Hardin, Health Officer, Lumberton, N. C.

On April 13, John Elliott, of Salisbury, N. C., gave a lecture to the staff and students in the Hospital Amphitheatre on Blood and Plasma Transfusion.

Specialists to Meet in Chicago.

The forty-fourth annual convention of the American Academy of Ophthalmology and Otolaryngology will be held in Chicago, October 8-13, at the Palmer House.

The Academy has a membership of about 2,800 eye, ear, nose and throat specialists and the attendance at meetings is usually well over 2,000. It is said to be the largest organization of specialists in the United States.

About half the program is devoted to formal addresses, but fully half the week's activities consist of "instructional courses," in which the doctors go to school in earnest, with hundreds of eminent specialists as their instructors.

Dr. George M. Coates, Philadelphia, is president, and Dr. Albert C. Snell, Rochester, N. Y., president-elect.

Dr. Allen Barker,

Who has been associated for several years with Dr. Wright Clarkson of Petersburg in the practice of roentgenology, has located in Roanoke, with offices in the Medical Arts Building, where he will continue work in his specialty.

Dr. Ernest T. Trice,

Of Richmond, has been reappointed as a member of the State Prison Board for a term of five years.

Dr. Leta J. White,

Petersburg announces the removal of her office from Medical Arts Building to 123 S. Sycamore Street, that city.

Dr. Norris W. Vaux,

Professor of Obstetrics at Jefferson Medical College, Philadelphia, and Physician in Chief at the Philadelphia Lying-in Hospital, was the guest speaker before the Norfolk County Medical Society at its meeting on March 27, his subject being Analgesia in Obstetrics.

Dr. Ballard Norwood,

Class of '37, Medical College of Virginia, has been appointed health officer of Granville County, N. C. He has recently been connected with a C.C.C. camp at Greenwod, S. C., and is now training at the University of North Carolina in county health work, preparatory to entering upon his new duties on July 1.

Beware of Salesman

Wishing to dispose of a new Spencer microscope, No. 147810 and an Underwood portable typewriter, No. 4B-155109. Dr. Thomas Payne Thompson of Aberdeen, Maryland, advises that these were stolen from his office on April 7, and he has reason to believe they were taken by a drug salesman who may try to dispose of them to a doctor. In case of a clue, please advise Dr. Thompson, or the police of Baltimore, Philadelphia, Wilmington, or Washington.

Attend Baltimore Meeting.

Dr. C. J. Andrews of Norfolk and Dr. H. H. Ware of Richmond attended the Obstetrical Section of the American College of Physicians in Baltimore, March 15-17, and took part in the symposium on Caesarean section lead by Dr. Philip F. Williams of Philadelphia. Dr. Howard F. Kane of Washington, D. C., was also on this program.

Industrial Health Conference in Cleveland.

The twenty-fourth annual meeting of the American Association of Industrial Physicians and Surgeons with the American Conference on Occupational Diseases and Industrial Hygiene will be held at Hotel Statler, Cleveland, Ohio, June 5-8. A program of interest and importance will be presented by speakers of outstanding experience in all of the medical and engineering problems involved in industrial health. A cordial invitation is extended to all whose interests bring them in contact with these problems. Information regarding hotel accommodations, etc., may be obtained from A. G. Park, Convention Manager, 540 North Michigan Avenue, Chicago.

Married.

Dr. Marion Kemper Humphries, Jr., Charlottesville, and Miss Zaida Pettit Thomas, Wytheville, April 15. Dr. Humphries graduated in medicine from the University of Virginia in 1937, and is at present connected with the University Hospital.

Dr. John Hampton Miller, Thomas, W. Va., and Miss Frances Taylor, Bridgewater, Mass., March 19. Dr. Miller is a graduate of the Medical College of Virginia, class of '32 and is at present on the staff of the Postgraduate Hospital of New York. After June 1, they will be located in Laconia, N. H.

"Syphilis and Your Town",

The second venereal disease folder, has been published by the U. S. Public Health Service. It outlines the essential points of a community control program, and, together with the first folder "Syphilis—Its Cause, Its Spread, Its Cure", tells the whole story of syphilis for the layman. The disease, the treatment, the facilities each town needs to find and treat syphilis are outlined. Copies of this folder may be obtained from the Superintendent of Documents, Washington, D. C., the price being $1.00 per hundred.

Dr. Arthur D. Knott,

Formerly of Virginia, but for sometime engaged in health work at Parkersburg, W. Va., is now at Smithville, Ga., where he will be engaged in the practice of medicine.

Dr. S. C. Draper,

Recently of Pulaski, has moved to Lynchburg and has offices at 205 Ninth Street, that city.

Dr. T. H. Worrell,

After practicing in Mount Airy, N. C., for the past twenty-two years, has retired, and he and Mrs. Worrell, after several weeks in Florida, have located at their country estate, "Azaleadell", near Hillsville, Va., where Dr. Worrell will take up dairy farming as a hobby.

Dr. Robert M. Caldwell,

Class of '36, University of Virginia, Department of Medicine, son of Dr. J. K. Caldwell of Galax,

Va., has taken over the practice of Dr. T. H. Worrell at Mount Airy, N. C., due to the latters' retirement.

Winner in Fifth Annual Rural Health Contest.

Arlington County, Virginia, recently received an award of merit in the 1938 Rural Health Conservation Contest, sponsored by the American and Canadian Public Health Associations.

Virginia Tuberculosis Association.

At the annual meeting of this Association, held in Roanoke, on March 31, Mr. J. Vaughan Gary was re-elected as president, and Dr. Frank S. Johns and Dr. Roy K. Flannagan as first vice-president and secretary, respectively. All three are from Richmond. Other doctors re-elected to the Board of Directors are: Dr. Dean B. Cole and Dr. Flannagan, of Richmond, and Dr. C. L. Harrell, Norfolk.

American College of Physicians.

At the annual meeting of the College, held in New Orleans, March 30, Dr. O. H. Perry Pepper, Philadelphia, was installed as president, and the following officers elected: president-elect, Dr. James D. Bruce, Ann Arbor, Mich.; and vice-presidents, Drs. Allen A. Jones, Buffalo, N. Y., Gerald B. Webb, Colorado Springs, Colo., and J. Morrison Hutcheson, Richmond, Va.

Dr. M. P. Rucker,

Richmond, was a guest speaker at the first meeting of the Greenbrier Inter-State Medical and Surgical Society held at White Sulphur Springs, W. Va., on April 17. His subject was on recent discoveries and experiences in the use of knotless sutures in childbirth cases.

This Society is composed of the counties of Greenbrier (W. Va.), and Bath and Alleghany (Va.).

Dr. William R. Berk,

Formerly of Clinchco, is at present located at 2635 Park Row, Dallas, Texas.

The New York Academy of Medicine

Will hold its Twelfth Graduate Fortnight from October 23 to November 3. The subject will be "The Endocrine Glands and Their Disorders". The purpose is to make a complete study and authoritative presentation of a subject of outstanding importance in the practice of medicine and surgery. The program will include clinics and clinical demonstrations at many of the New York hospitals, evening addresses, and exhibits.

The Academy provides this program for the purpose of medical education and all members of the medical profession are eligible for registration. A complete program and registration blank may be secured from Dr. Mahlon Ashford, The New York Academy of Medicine, 2 E. 103rd Street, New York City.

Dr. James T. O'Neal,

Class of '35, Medical College of Virginia, has located for general practice in Amelia. He has recently been in Pennsylvania with a C.C.C. camp.

National Society for Prevention of Blindness.

In the annual report of this Society, it is shown that during the past thirty years, the campaign to eradicate ophthalmia neonatorum has brought about a 75 per cent reduction in the number of infants who lose their sight at birth. Also great strides in the control of syphilis are of particular importance in the protection of eyesight as approximately 15 per cent of all blindness can be traced to syphilis.

Sight saving classes are now providing a normal education for approximately 8,000 American school children, the number of classes having grown to 589, an increase of thirty-one over the year before. About 450,000 copies of the Society's pamphlets and 12,000 posters were distributed, and a motion picture film, "Preventing Blindness and Saving Sight" was shown to 1,500 audiences. Exhibit material was provided for 125 conventions and a transcribed radio program on the Fourth of July was used by 200 stations.

The Society's expenditures for 1938 amounted to $169,000. Financial support is received through voluntary contributions from 17,000 members and donors in all parts of the country.

Dr. Wm. H. Parker,

Richmond, has been honored by having a soft-ball diamond in the State Fair Grounds named in his honor. The field was officially dedicated at the opening league game in April, at which time Dr. Parker was guest of honor.

Dr. D. Hunter Marrow

Advises that he has returned to his home in Boydton, Va., for the summer months, after spending the winter at Daytona Beach, Fla.

Dr. W. Ambrose McGee,

Richmond, was the guest speaker before the Norfolk County Medical Society on April 17, his subject being Preventive and Therapeutic Measures in Childhood Allergy.

Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

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Obituary Record

Dr. John W. Bowdoin,

Prominent physician of the Eastern Shore, died at his home in Bloxom, on April 5, having been in ill health for several months. He was eighty-four years of age and graduated from the College of Physicians and Surgeons, Baltimore, in 1876. Dr. Bowdoin was active in politics, having served as State fish commissioner. He was a member of the Accomac Board of Supervisors for twenty-six years. Dr. Bowdoin was for some time a member of the Medical Society of Virginia. His wife and two children survive him.

Dr. John Woolfolk Winston,

Prominent physician of Norfolk, died April 17, after an illness of about three months. He was a native of Texas and sixty years of age. Dr. Winston moved to Bowling Green at a very early age and graduated from the University of Virginia, Department of Medicine, in 1903. He had practiced in Norfolk for thirty-four years and was a senior member of the staffs of the Norfolk General and Leigh Memorial Hospitals. Dr. Winston was formerly a member of the Medical Society of Virginia. His wife and four children survive him.

Dr. Frederick L. Smith,

Stanley, died March 23, following an illness of several years. He was sixty years of age and a graduate of the former University College of Medicine, Richmond, in 1905. Dr. Smith had been located in Stanley for twenty years. His wife survives him.

Resolutions on Dr. Margaret Kuyk.

Graduating from the Woman's Medical College of Pennsylvania less than half a century after the first bestowal in this country of the degree of Doctor of Medicine upon a woman, Dr. Margaret Parker Forcee served an internship in Cook County Hospital, Chicago, and later pursued special studies at Johns Hopkins and at the New York Post-Graduate Medical College.

Later she opened an office in Pittsburgh and had just established an excellent practice when Fate, in the person of Dr. Dirk A. Kuyk of Richmond, intervened. Coming to Richmond as the bride of Dr. Kuyk, she quickly established a place for herself in the social life of this city, without surrendering her scientific interests.

In 1912 she became a member of the Medical Society of Virginia and of the American Medical Association, and in 1913 was appointed by the latter to its Committee on Public Health Education. In the same year she became first Medical Director of the Sheltering Arms Hospital, in which capacity she served until 1924.

In 1919 she was appointed to the Chair of Physiology and Hygiene at Westhampton College, which position she held until her retirement from active work in 1926. During her service there she received the honor of the Phi Beta Kappa Key. She was a woman of broad culture, and the author of many pamphlets of true scientific value.

BE IT RESOLVED, THEREFORE, that in the death of Dr. Margaret Parker Forcee Kuyk, January 16, 1939, Richmond lost a brave pioneer, and the Sheltering Arms Hospital a valued friend and adviser, and that the Staff hereby express their appreciation of her life and work.

Respectfully submitted,
MARY B. BAUGHMAN
MARGARET NOLTING
Committee.

Mr. Benjamin T. Fairchild.

It is with regret that we announce the death on Saturday, March 25, of Mr. Benjamin T. Fairchild, President of Fairchild Brothers and Foster of New York City.

Dr. Ephraim Roland Mulford,

Burlington, N. J., died of coronary occlusion, on March 10, while visiting friends in Charlottesville. He was fifty-eight years of age and a graduate of the University of Virginia, Department of Medicine, in 1903. Dr. Mulford was a past president of the Medical Society of New Jersey.

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RICHMOND, VA., JUNE, 1939

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CONTENTS

The Present Status of the Medical Treatment of Peptic Ulcer. T. Dewey Davis, M. D., Richmond, Va. 317

Clinical Manifestations of Acute Rheumatic Fever: Age Incidence, Diagnosis and Treatment. J. Franklin Waddill, M. D., Norfolk, Va. 322

Alcohol or Candy. Beverley R. Tucker, M. D., Richmond, Va. 329

Bronchiectasis: A Consideration of Its Causes and Its Prevention. Louis H. Clerf, M. D., Philadelphia, Penna. 332

Nutritional Deficiency Disease—With Special Reference to Vitamin B Deficiency. Oscar L. Hite, M. D., Richmond, Va. 335

Mortality from Malaria in the United States. John Benjamin Nichols, M. D., Washington, D. C. 339

Lymphedema of Extremities. Eugene L. Lowenberg, M. D., F. A. C. S., Norfolk, Va. 345

Imperforate Hymen—Report of a Case. J. Kotz, M. D., F. A. C. S., and Morton S. Kaufman, B. A., M. D., Washington, D. C. 355

The Healing Process—General Principles. M. H. Todd, M. D., Norfolk, Va. 357

CORRESPONDENCE 361

PUBLIC HEALTH STATISTICS 361

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 363

TRUTH ABOUT MEDICINE 364

BOOK ANNOUNCEMENTS 365

EDITORIAL 366

DEPARTMENT OF CLINICAL AND MEDICAL EDUCATION OF THE MEDICAL SOCIETY OF VIRGINIA 370

PROCEEDINGS OF SOCIETIES 372

NEWS NOTES 373

OBITUARY RECORD 379

INDEX TO ADVERTISERS—Advertising Page 6

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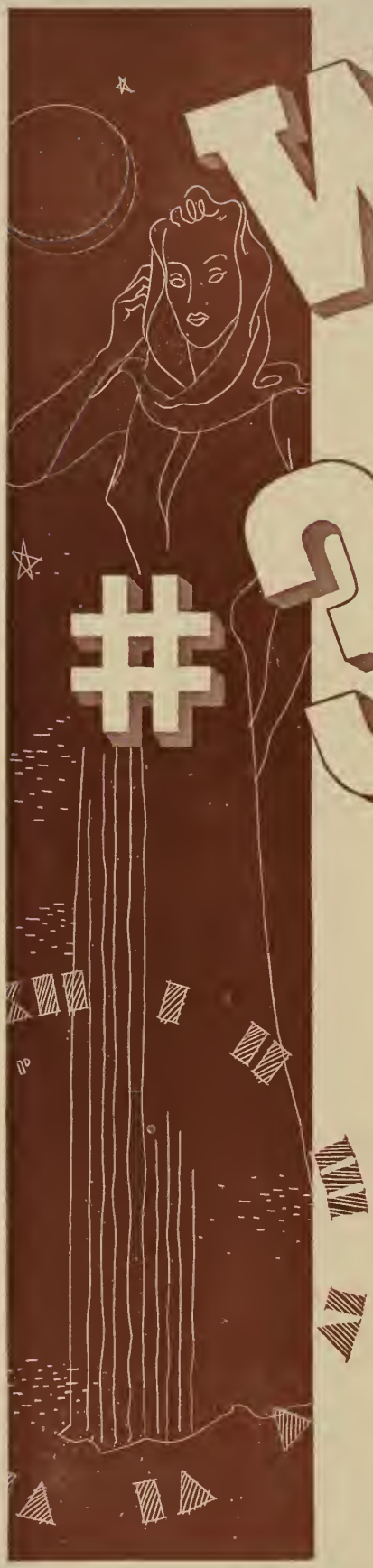

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THE PRESENT STATUS OF THE MEDICAL TREATMENT OF PEPTIC ULCER.*

T. Dewey Davis, M.D.,
Richmond, Virginia.

My object in discussing the medical therapy of peptic ulcer with you today is to emphasize certain concepts of the present day treatment of this disease. It is not my purpose to dwell on the etiology to much extent, since in spite of extensive experimental and clinical investigations extending over many years, we still must approach this phase with theories and not facts. It is recognized, however, that the disease occurs most often, and in more pernicious form, in individuals of peculiar physical and nervous make-up. They are usually lean and lanky, with fears and inhibitions; they commonly are specialists in life, and have the "go-getter" temperament. We who deal extensively with patients whose chief complaint is indigestion learn to spot the type at first glance, but why do so many of them exhibit the make-up and the symptomatology of peptic ulcer but without X-ray or exploratory evidence of a local ulcerative lesion? We then are ignorant as to what sets up the ulceration, why it may heal spontaneously, and why after weeks, months or years it may recur exactly as before.

From accumulated clinical experience, it has been shown that if the gastric acidity is adequately controlled by any means, relief of symptoms and healing of the ulcer will occur. Experimentally, evidence has been produced that instilling hydrochloric acid of approximately the same concentration as is in the gastric juice directly on the ulcer through the duodenal tube has precipitated the characteristic ulcer pain. No one, however, has ever proved that gastric acidity is the actual cause of ulceration; in fact, the preponderance of evidence is against this view.

We, therefore, are forced to treat peptic ulcer empirically. The fundamental principles laid down by Sippy twenty-five years ago still constitute the backbone of treatment. The many modifications of his plan are all designed to promote rest of the stomach and control of gastric acidity. This non-spectacular régime is the patient's job, and he naturally welcomes anything which will relieve him of the responsibility while shifting it to his physician. Anyone who has followed the subject over a period of twenty years can recall the many short cuts that have been proposed, tried and discarded. I will mention only three of these: Injection of foreign proteins, synodol, and histidine (larostidin). Two quotations from a recent article by Crohn would seem to cover this portion of the subject. He says, "I have failed to find anything of value in these agencies. Reports concerning them in the literature to date are extremely guarded when given by men who value their professional reputation, and enthusiastic when coming from overzealous practitioners who evidence but little judgment." Later he continued, "The expense involved, the daily visits, the local and general reactions and the high percentage of recurrences after six months of this treatment fail to establish a case for histidin as against the more orthodox conservative dietary routine. Treatment by injection smacks more of the Continental fondness for proprietary drugs and probably redounds more to the benefit of the commercial houses that promote them than to the welfare of the patient."

My own experience with the injection treatment of peptic ulcer has been limited to those patients who were anxious to try it and I am convinced that the good effect is psychic and could just as well be obtained by a syringe loaded with distilled water, provided the patient were not aware of the content.

Theoretically, powdered gastric mucin should be an ideal agent to control gastric acidity since it does not introduce a foreign substance into the body. It controls gastric acidity when given in appropriate

*Read before the sixty-ninth annual session of the Medical Society of Virginia, at Danville, Va., October 4-6, 1938.

amounts and at proper intervals and it does have a demulcent effect. The objectionable taste, the cost and the fact that it carries the same monotony as the Sippy régime have prevented its general acceptance.

The physician who simply makes a diagnosis of peptic ulcer on his patient, hands him a diet list and prescriptions for certain medications will not get far toward curing his patient. It has often been said that the more a diabetic knows about diabetes the longer will be his life expectancy. To further this idea, many large clinics have courses of instruction for unfortunate victims of this disease. The same holds true for peptic ulcer. The more the patient knows about the ulcer, the better his chance for a cure and the prevention of recurrence. It is, therefore, the unquestioned duty of the physician to take time for a thorough explanation of the disease and the principles underlying the therapy outlined. Furthermore, it is essential that the patient report at rather frequent intervals for additional conferences. These serve to check the quite known tendency to become lax in the program when the apparent need of it has long since disappeared. It is my custom to set a period of two years as the required time for healing of the ulcer. I expect healing to occur much sooner than this, but in this time the habit of frequent feeding becomes more fixed and is easily continued indefinitely in the hope of preventing recurrences.

The dietary program is important but also it is necessary to change the individual's general habits. He must slow down nervously, getting more rest and relaxation; he must avoid excess of stimulants, and, from clinical and experimental observations, there seems little question that tobacco should be prohibited. I seriously doubt that merely reducing the amount of tobacco smoking is of much value. My reason for this statement is that patients often tell me that they "feel" an occasional cigarette much more than when they keep their bodies saturated with nicotine.

It is not my purpose to give you the details of medical treatment—you are already familiar with these. I would emphasize that the nearer the diet prescribed approaches the general the better chance there is of the patient following it. The prohibition of certain acid and stimulating foods and roughage is certainly indicated, but to insist that all vegetables be pureed invites breaking of the diet. I have noted in recent years a definite tendency on the part of some teachers to omit all medication from the program. However, I think it wise to give patients some medicine. They expect it, and probably some combination of belladonna with a mild sedative three or four times a day is of benefit. Alkalies have long been standards in the program. I definitely believe that the inclusion of absorbable alkalies, such as sodium bicarbonate, is not a good practice, but long experience with mixtures of magnesium oxide and bismuth subcarbonate convinces me that these are harmless and this mixture when properly proportioned is quite effective in over-coming constipation, which is such a common symptom in the peptic ulcer syndrome.

There has been a strong tendency in recent years to use compounds, such as magnesium trisilicate and colloidal aluminum hydroxide (cremalin) as acid neutralizers. Either of these in my experience has been very satisfactory except that they are mildly astringent and tend to produce additional constipation. This may be combated by a bedtime dose of mineral oil or magnesia.

In intractable cases, the continuous milk-drip method of Winkelstein, or the drip administration of colloidal aluminum hydroxide, as advocated by Woldman and his co-workers, would seem to be most logical. Personally, I find that the patient with this type of ulcer is usually not temperamentally suited to the retention of the tube in his nose or mouth for a sufficient period of time for the therapy to be effective.

The question of a preliminary period of bed rest is one that requires careful consideration. Theoretically, two to six weeks of complete rest should be invaluable. Economically, this is rarely practicable except with actual or threatened complications. To put a bread winner to bed in the face of mounting bills during his enforced inactivity will usually produce more nervous tension than previously existed. It is my practice, therefore, to start the great majority of my cases on ambulatory treatment.

Considerable discussion has appeared in the literature recently on the handling of ulcer patients with massive hemorrhage. This complication will arise eventually in about 20 per cent of the cases. We need not fear a fatal termination from hemorrhage in more than 1 per cent of these, and, if statistics were closely analyzed, the great majority of fatalities

would occur in elderly patients with sclerotic vessels. The two patients in my experience who have bled to death have been in this category, and when my third case makes its appearance I plan to advise immediate surgical intervention. It has been my policy not to transfuse these patients unless their hemoglobin drops below 40 per cent or the systolic blood pressure persistently remains below 90 mm.

Immediately following a gross gastric hemorrhage, I believe the patient should be quieted with opiates, his stomach should be kept empty and necessary fluids given rectally or parenterally. The period of starvation will be continued for two or three days, depending on the indications of arrest of the hemorrhage. Then Sippy treatment is instituted. I am aware of the fact that Muhlengracht and a few others advocate immediate institution of Sippy treatment in these cases. I can see argument in favor of their plan but am not ready as yet to make the change. An important point to remember is that iron is not as effective when administered along with alkalies. It is better to use one of the newer acid absorbers mentioned above in this situation.

In conclusion, I would like to state that nothing in the practice of medicine gives me more comfort than to see the pinched, pain racked face of a suffering ulcer patient smooth out under so simple a régime. It must be recognized that there are many individuals who are temperamentally incapable of following routine treatment for an indefinite period. These people so often wind up in the surgeon's hands but, unfortunately, they may later bound back with recurrent ulcerations which are infinitely harder to manage than the original situation. With frankness, tact and firmness, we should show these people what they must do, that they are prone to recurrences and that their problem is apt to be lifelong, but that with perseverance and forbearance they may live comfortable and useful lives.

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DISCUSSION

DR. WALTER ADAMS, Norfolk: Dr. Davis has covered this subject very completely. As a matter of fact, it has so many ramifications that it can be compared to the subject of appendicitis, which the surgeons are always discussing. It has been cussed and discussed and recussed, and I think it is very timely indeed.

I want to comment upon one or two details that Dr. Davis outlined. In the first place, I wish to emphasize the prophylactic treatment of ulcer in certain anatomical types. Dr. Davis mentioned people of certain anatomical types who have a tendency to ulcer. There are various stages in the erosion stage, up to actual ulcer. When the actual ulcer occurs, and then the reversion to an erosion, and then a healing process takes place, we still have to take care of that patient. That goes back to the question of education, of which Dr. Davis has spoken.

The actual treatment of ulcer, of course, is divided into local and constitutional. It is not necessary to reiterate the importance of local care. Dr. Davis has mentioned drugs of an antispasmodic nature and has mentioned the alkaline compounds. He did not lay a great deal of stress upon between-meal feedings. In this connection I recall the remarks of Dr. Mallory last night, who said that in these conditions it is necessary to tell the patient to eat something between meals that must be chewed, not something of a liquid nature that will pass right through the stomach.

In dealing with the etiology one factor recurs to my mind. That is the neurogenic factor. That is connected with the imbalance of the autonomic nervous system, the parasympathetic as distinguished from the sympathetic; and it is in these tall, lean, vagotonic individuals that this imbalance is present. What does atropin do? It relieves the over-stimulation of the parasympathetic system.

Dr. Davis mentioned nicotine. Now, tobacco gives many of us an enormous amount of pleasure, and there are probably gentlemen right here in the room who have ulcer and are not going to stop smoking. We know, however, that nicotine is actually a drug, that it has active properties, and that it does stimulate the parasympathetic system. A patient with a background of ulcer who continues to smoke lays himself open to a lot of trouble unless he has experimented and knows the amount he can take. I therefore believe that in the beginning of the treatment of these cases the full curtailment of smoking is very important, not the cutting down to four or five cigarettes a day, because we do not know the tolerance of any person for nicotine, and the total withdrawal of the drug nicotine is very important.

The treatment of ulcer is not a spectacular thing. Patients like to be cured in a spectacular way. They like surgery more than medicine; they like to be sliced open and come back and talk about the operation. But a patient after having an operation must continue to take care of himself for the rest of his life. I am not arguing against surgery, but I do feel that many of these patients, if they are educated, can be trained to take care of themselves without surgery. The percentage that go to surgery is, of course, enormous.

DR. J. SHELTON HORSLEY, Richmond: Dr. Davis has admirably presented the general principles of the treatment of peptic ulcer. We must, first of all, consider that the primary cause of peptic ulcer is in many instances unknown, and that the treatment, whether medical or surgical, is largely empirical. The condition is much like hyperthyroidism. There undoubtedly is some stimulating cause in the nervous system, probably the central nervous system, that first leads to the hypersecretion. If we can

remove much of the thyroid that manufactures this secretion we produce a clinical cure. So in peptic ulcer, the cause may be a streptococcus, as Rosenow contends, but doubtless only in some of the cases. Infants are known to have peptic ulcers which perforate, and to have peptic ulcers when the milk came from cows with udders infected by streptococci. In most cases, however, peptic ulcer occurs in young or middle-aged adults who frequently are high-strung or over-wrought.

Cushing has given instances of peptic ulcer developing after operations on the brain in which the base of the brain was involved, and he favors the neurogenic theory of Rokitansky for the origin of peptic ulcer, or an imbalance between the sympathetic and the vagal influences, which usually means the predominance of the vagal impulses.

All peptic ulcers of the duodenum should be treated medically, at least at first. It is doubtful if the hypodermic injections of Larostidin or histamin products have any real value, just as Dr. Davis has said. Diet is the main factor in the treatment, together with occasionally such drugs as may reduce the acidity, preferably not giving sodium bicarbonate in large quantities continuously.

Surgery in peptic ulcer of the duodenum should be reserved for those cases in which there is marked or frequent bleeding (especially in those over forty), when there is perforation, when medical treatment fails to relieve symptoms, or when there is obstruction. Peptic ulcers of the stomach, however, which are far more infrequent than peptic ulcers of the duodenum, should be watched more carefully because there is undoubtedly a tendency of peptic ulcer of the stomach to turn into cancer in at least a small percentage of cases, or, what amounts to the same thing, an early cancer may stimulate a peptic ulcer both roentgenologically and clinically.

It must be recalled, too, that medical treatment in early cancer of the stomach will almost always relieve the symptoms at first; so this is no therapeutic diagnostic test as it is often considered. Peptic ulcer of the stomach that does not heal readily or is even suspicious of cancer should be operated upon early, whereas in the duodenum medical treatment can continue indefinitely unless complications arise. A peptic ulcer either of the first part of the duodenum or of the stomach that perforates into the pancreas usually requires operation for cure. Peptic ulcer of the pyloric sphincter is not often cured by medical treatment, but should be operated upon, preferably by partial gastrectomy.

If an operation is necessary for peptic ulcer, an endeavor should be made to restore the parts as nearly to physiologic normal as can be done. A gastro-enterostomy in a peptic ulcer in a young man with high acid content in the gastric juice is frequently followed by a jejunal ulcer and the last stage is often worse than the first. When the acid content of the stomach is low, gastro-enterostomy may be satisfactory. When surgery seems indicated, I am more and more inclined to do a partial gastrectomy, using a modification of the Billroth I type of gastrectomy and uniting the stomach to the duodenum. Pyloroplasty has some indications, though they are not frequent. When there is a stenosis with low acid and the patient is about middle age, a posterior gastro-enterostomy is usually satisfactory.

DR. WILLIAM B. PORTER, Richmond: Comments have been made about the action of nicotine on the nervous system with which I cannot agree. We have in the audience a man who really knows a good deal about this drug and its action on the nervous system, and I should like to have Dr. H. B. Haag straighten us out on the pharmacology of nicotine.

DR. HARVEY B. HAAG, Richmond: I was very much interested to hear Dr. Davis say what he did about some of the statements which patients with peptic ulcer have made as regards the effects of smoking two or three cigarettes and smoking a great many cigarettes. I think it is true that certain amounts of nicotine may stimulate the parasympathetic nervous system. As a result of that there might be an increase of spasm and hence an increase of pain in susceptible patients. With increased doses of nicotine one tends to get more of a stimulation of the sympathetic system with beginning depression of the parasympathetic system, with decrease of spasm and pain. So, theoretically, if these people are to smoke, they should smoke a great deal!

We used to relate hunger contractions to blood sugar. With hunger contractions we would expect a diminution in blood sugar. This has incidentally, I am told, been recently disproved. If the first statement is true, then hunger contractions are also associated with the appearance of hypoglycemia. Theoretically here, again, nicotine, by increasing the blood sugar, might have something to do with the relief of gastric spasm.

There are several things about belladonna that I should like to ask Dr. Davis. Dr. Bastedo, of Columbia, has written, as all of you know, rather extensively about the effect of belladonna on gastric ulcer, and I understand it is his belief and the belief of his group that the doses of belladonna ordinarily employed have no effect at all either on the secretory functions or the motility of the stomach. The only time when any effect was obtained was by the use of tremendously large doses—doses sufficient to dry up the secretions, produce dilatation of the pupils, and so forth. The second thing I want to ask about is the use of stramonium, which contains hyoscyamin. The hyoscyamin present in stramonium is many times more active, so far as its paralyzing effect of parasympathetic nervous systems is concerned, than atropin, which tends to predominate in belladonna.

Some investigators have used hormones in the treatment of gastric ulcers—anterior pituitrin, for instance. This has been done largely in an experimental way, and it has apparently been shown that anterior pituitrin might be of value in the treatment of peptic ulcer.

DR. D. G. CHAPMAN, Richmond: A point I should like to know about is this: If a person smokes and it produces pain, it has a tendency to increase his acidity; why is it not bad for ulcer? Why is it not bad for other things?

I think it is a question not so much of how it works in the laboratory but how it works on the patient.

DR. WILLIAM B. PORTER, Richmond: Dr. Chapman has recently written an excellent paper on the clinical action of nicotine. It is well known that nicotine decreases skin temperature following the smoking of a cigarette, which is due to the sympathetic effect rather than the parasympathetic. It is conceivable, therefore, that it has a similar action on the stomach, particularly when an ulcer exists. There is much evidence that the ulcer symptoms are in some way related to an over-action of the sympathetic system which has prompted Dr. Crile to recommend the removal of the suprarenal gland.

DR. FRANK L. APPERLY, Richmond: Dr. Cushing's work, which Dr. Horsley mentioned, is very interesting. He showed that gastric ulceration followed abnormal overstimulation of the vagus nerves, whether this was part of a general vagotonia, as in the worrying type of person (people who drive others and drive themselves), or incidental to some brain injury involving the hypothalamus (birth injuries, or following operation for basal tumors): or brought about by parasympatheticomimetic drugs.

In regard to belladonna, I have treated for some years many cases of parasympathetic over-activity with this drug, but I have never been able to produce any effect whatsoever with the ordinary pharmaceutical doses.

With regard to smoking, I am one of the parasympatheticotonics myself, and I enjoy my pipe. I think it does not matter a great deal if we do smoke, provided we do so on a full stomach, so that any swallowed irritant is well diluted by gastric contents. The early morning cigarette, however, can cause a good deal of irritation and has a bad reputation as a factor in peptic ulceration. It may be, of course, that it is only the irritable worried person (also most prone to gastric ulcer) who smokes before breakfast!

DR. OSCAR L. HITE, Richmond: I would like to say a word relative to the commonly used anti-acids in the treatment of peptic ulcers. Dr. Frank L. Apperly has shown very definitely in a paper he wrote some time ago on some experimental work among a group of medical students that sodium bicarbonate, which is so commonly used as an anti-acid, instead of being beneficial, was definitely harmful as an anti-acid. It immediately neutralizes the acid gastric contents, but, secondarily, there is a rise in the acid content of the stomach. It would be well for physicians prescribing anti-acids to bear this in mind.

Much has been said about anti-spasmodics. A great variety of anti-spasmodics have been used over a period of years. Many of them have been discussed here this morning. Among those, however, of which no mention has been made, and from which I have received satisfactory results is ephedrine sulphate.

A few years ago, a group of investigators over in West Virginia published an article in the *Journal of The American Medical Association* showing the anti-spasmodic effect of ephedrine sulphate on the stomach and intestinal tract. They had some very beautiful pictures in this article demonstrating their work. Since that time, I have used ephedrine in a great number of cases and from my observation it has been very satisfactory. I have never been a very enthusiastic user of tincture of belladonna. I realize that it is generally accepted as the best anti-spasmodic in gastro-intestinal diseases, but in my own personal experience I have not observed any startling effect from its use.

I think Dr. Davis is rather optimistic when he makes the statement that "I expect these ulcers to heal in a period of two years or less." It has been my experience that a great many duodenal ulcers never heal, or at least patients have recurring symptoms from time to time. I dare say this has been the experience of many insurance companies.

As to the use of aluminum hydroxide, I would like to state that I can see no advantage whatsoever in the use of a nasal tube and the drip method as it is being used today. The same results can be accomplished by the administration of small doses at frequent intervals by mouth, and the patient does not experience the discomfort of having to keep the tube in place constantly. If we are to use a duodenal tube, I think it would be much better to resort to duodenal alimentation as practiced by Dr. Einhorn for many years. The results obtained by duodenal alimentation in gastric ulcers are particularly gratifying. By duodenal alimentation, all foods are shunted past the ulcerated area into the small intestines, giving the ulcerated area a complete rest. A small amount of alkali is given at times by mouth.

I was hoping that Dr. J. Shelton Horsley would say something about surgery in so-called peptic ulcers, but time did not permit him. I would like to say briefly that any surgery undertaken should tend to approximate as nearly as possible the normal physiologic function of the stomach and duodenum.

Dr. Davis' subject is a timely one and the treatment as suggested by him is sound and conservative. I think he is to be congratulated upon the manner in which he treats peptic ulcers as well as the presentation of the subject.

DR. DAVIS, closing the discussion: I greatly appreciate the discussions of my paper which have been presented. So many points have been made that I can only touch on a few of them. I am aware of the fact that there is difference of opinion as to the effect of the available anti-spasmodics. They are frequently disappointing when used for relaxation of the gastro-intestinal spasms. On the other hand, there is clinical evidence indicating that they help symptoms and I am not ready to discard them. One of the speakers suggests that we might use stramonium instead of belladonna. I am afraid, however, that the cerebral effects of stramonium preclude its general use for ambulatory patients.

Someone has suggested the use of various hormones for the treatment of peptic ulcer but I am very suspicious that the effect will turn out to be psychic.

As to tobacco smoking, I am satisfied in my own mind that it is not good for a peptic ulcer. Dr. Haag has men-

tioned that light smoking produces stimulation, whereas heavy smoking may produce relaxation. I believe that the safest plan is to prohibit smoking entirely in an individual with a peptic ulcer.

My paper deals with general principles in the treatment of peptic ulcer and, naturally, I did not go into the details of treatment. The backbone of this, of course, is frequent feedings. The usual number in twenty-four hours is six but it may be necessary to feed these patients more often. During the acute symptoms I frequently awaken them several times during the night. It is very easy to determine acid control by withdrawing samples of stomach contents at various times during the day, adjusting the feeding interval according to the findings.

CLINICAL MANIFESTATIONS OF ACUTE RHEUMATIC FEVER: AGE INCIDENCE, DIAGNOSIS AND TREATMENT.*

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In spite of the many years that rheumatic fever has been known and recognized as a clinical entity, it still remains as one of our foremost clinical problems, especially among children. Contrary to public opinion the diagnosis of rheumatic fever is not an easy one to establish, especially as the well known polyarthritic variety is only one of several totally different manifestations. Added to this are the factors of recurrence following the initial attack and that the joint involvement is not the most common type of lesion in the very young. All of these serve to increase the complexity of the picture of rheumatic infection. It is not difficult to realize with this in mind that there is a great deal of rheumatic disease which is overlooked and that masquerades under a variety of other names.

Swift[1] has offered a definition of rheumatic fever as a disease of undertermined etiology characterized by a toxic state and fever and by the presence in certain organs of the body of small, disseminated focal lesions of a proliferative type. In the acute stage there is also an exudate in and about the joints, and sometimes in the pleura and pericardium. A great deal of investigation has been carried out over many years in an effort to determine the etiologic agent responsible for this infection. Much work has been done in an attempt to prove an etiologic relationship between rheumatic fever and the hemolytic streptococcus, but so far this has never been definitely demonstrated. It has been shown repeatedly that hemolytic streptococci are usually present in the naso-pharynx during the upper respiratory infection which precedes the initial attack or that ushers in a recurrence of the disease, but the organism may or may not be present during the subsequent actual period of rheumatic activity. Many observers accept the fact that there is a direct relationship between streptococcic infection and rheumatic activity, while others assert that it is a virus infection; and still another group upholds that it is the result of a state of tissue allergy to certain bacterial toxins.

Eagles[7] and his coworkers have only recently offered evidence in support of the virus etiology based on inclusion particles found in the exudates of rheumatic patients which bear close resemblance to the elementary bodies of known virus infections. Klebs[4] asserts that the allergic state is not related to the etiology of rheumatic infection. As far back as 1894 Leyden[5] isolated streptococci from endocardial lesions of rheumatic patients. Triboulet and Apert in 1898 isolated a similar organism from the blood of a patient with rheumatic fever which caused arthritis, endocarditis and pericarditis when injected into rabbits. It is known that rheumatic infection often accompanies or follows scarlet fever, and yet, in contrast, Keefer and Spink point out that in a review of 1,400 cases of erysipelas, rheumatic infection as an accompaniment or sequel was not noted in a single instance.

In view of the present contradictory and confusing hypotheses of the true etiology it seems advisable to retain the most widely accepted view at present—certainly, until a more definite one has been established. This present theory is that the disease would appear to be due to not one particular strain of streptococci, but is a systemic sensitization to the products of streptococci in some active focus of infection, and that the disease itself is a tissue reaction to the toxins or toxic products of these organisms.

The incidence of rheumatic fever[2] shows a definite relationship to geographical distribution, climate,

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environment and the general state of health in various classes of people. In this country the highest incidence is in the cold, damp climate of the Northern and Seaboard States. In the warmer, drier climates of the Southern and Southeastern States the incidence is very definitely less and the actual infection seems to run a milder course. Patients brought South with the disease appear to recover more quickly than if left in their usual environment. Up until recently it was stated that the disease was practically unknown in the Tropics, but not long ago several reports were published of cases in India, Australia and Southern China.

Malnutrition, poorly heated, damp living quarters and exposure are all predisposing factors, and, consequently, it is among the poorer social groups in the over-populated districts that the greatest incidence is found. The environmental factor most important seems to be that related to upper respiratory infections. In this country the highest incidence generally is from February to June, while in England the autumn months show the highest occurrence of the infection.

The severity and symptoms of rheumatic fever vary somewhat from year to year as well as over a period of many years. It is now said that there are a fewer number of cases of polyarthritis in the large, general hospitals than formerly. Girls show a higher occurrence of this infection than males, generally speaking, although in adult life this ratio is about equal or slightly reversed.

Rheumatic fever has been shown to have a familial relationship[8] or tendency. Studies of large groups by independent observers, insurance companies and clinics have demonstrated a definitely greater occurrence of the infection in families with a history of the disease than in those in which no previous history could be elicited. The greater number of cases occur between the ages of five and fifteen years, although the disease may make its appearance anywhere from birth to old age. It is said to be rare under the age of three years, but this may be due to faulty recognition of the disease at this stage of life or to atypical manifestations.

Rheumatic fever has been divided in some classifications into the visceral, joint and circulatory types, but it would appear preferable to classify it for the sake of simplicity as a disease of the general circulatory system with numerous sympotomatic manifestations. In general, rheumatic infection may occur in one of three forms:[2]

1. The monocyclic variety which is more likely to occur in adults, and is of relatively short duration, composed of a migratory polyarthritis, leucocytosis, sweating and fever. Pleuritis and carditis may occur simultaneously.

2. The polycyclic form represents several repetitions, rather close together, of the monocyclic form with a marked tendency toward cardiac envolvement.

3. The continuous state with varied manifestations which may show any combination of the numerous symptoms of the disease.

Important in its recognition is familiarity with the symptomatology and the knowledge that this shows a tendency to vary somewhat with different age levels. The polyarthritic form, while a most common manifestation of the total number of cases, irrespective of the age level, is not considered to be the common form of the disease in children. In this latter group carditis is many times more frequent as the initial manifestation. Ash, in reporting 416 cases of rheumatic fever of all ages, found a febrile polyarthritis as the initial symptom in 58 per cent. Christie, in a report of 116 cases, discovered the polyarthritic type in 68 per cent. In children, however, the joint symptoms are often entirely absent or so mild as to escape recognition, and it is this fact which is so often misleading in the detection of the presence of the disease. Symptomatically, Tyson[9] has enumerated seven different clinical forms of active rheumatic fever, including the polyarthritic variety. These are as follows:

1. Chorea—Sydenham's.
2. Carditis.
3. Recurrent acute tonsillitis.
4. Growing pains—vague muscle and joint pains in the extremities, with low grade fever and increased pulse rate.
5. Erythema nodosum.
6. Abdominal pain and cramps with nausea, vomiting and low grade fever.
7. Polyarthritis.

Any one of these forms may be present as the initial symptom, either alone or in combination with the others. While the above symptomatology appearing in an otherwise normal child does not necessarily convict him of rheumatic fever, its presence should be strongly suspected if it is accompanied by a rapid sedimentation rate, leucocytosis, sweating

and fever. Wolfe and Brim in addition to Tyson have likewise described cases of rheumatic fever in children which manifested themselves by recurrent abdominal cramps, low grade fever and nausea.

Some qualification is needed in respect to classifying erythema nodosum as an outright manifestation of rheumatic fever.[10] This skin lesion of an inflammatory nature has been pointed out as being closely related to tubercular as well as streptococcic infection. Both American and Scandinavian literature contain reports of the relation between erythema nodosum and tuberculosis, especially in children. Spink reports that in his experience, however, association between erythema nodosum and streptococcic infection, especially of the upper respiratory tract, was the more common relationship and he concludes that the lesion itself represents a non-specific inflammatory skin reaction to a variety of bacterial, toxic and chemical agents. Other observers feel that it is very definitely a link in the rheumatic syndrome. Its frequent association with both the tubercle bacillus and the streptococcus should be borne in mind and, if no evidence of tubercular involvement exists, its possible association with a streptococcic infection and an underlying rheumatic involvement should be carefully considered.

Recently there has been a growing controversy as to whether chorea is a part of the rheumatic syndrome. Coburn and Moore[11] believe that the two diseases are entirely independent of each other. It is often true that chorea is present alone with no other rheumatic manifestations, and in these instances the fever, leucocytosis, and sweating, as well as rapid sedimentation rate are absent. In the absence of these accompanying signs the evidence would appear to be against the presence of a generalized or systemic infection, such as rheumatic fever. On the other hand, in a study of 467 patients with chorea, Sutton and Dodge[12] report the presence of heart disease as a complication in 25.4 per cent of the patients who had "pure" chorea, and an incidence of 33.5 per cent in those with accompanying muscle and joint pains. They conclude from a broad study that chorea should continue to be regarded not only as a manifestation, but as a major manifestation of rheumatic infection. They feel that any relaxation in vigilance in this respect will lead to improper care of the patient and to an unwarranted decrease in clinical attention to the disease. Until further studies have shown more conclusively that chorea and the rheumatic process are unrelated, it is advisable to continue to regard an association between the two.

The onset of the actual rheumatic infection most often takes place in the following manner:

An acute upper respiratory infection followed by a quiescent interval of from one to five weeks during which time the respiratory infection may have abated altogether or markedly improved. This period is then followed by the actual onset of the rheumatic infection which may reveal itself in any one of its various forms. These symptomatic indications of the presence of the infection are accompanied in the majority of cases by both an absolute and relative leucocytosis with a definite shift to the left in the Schilling count, a rapid fall in the sedimentation rate, fever, sweating and an increased pulse rate. In some cases epistaxis and subcutaneous nodules are also given as accompanying evidences of the disease.

Now a word as to the sedimentation rate.[13, 14] There are several satisfactory methods of performing this test. Those of Cutler, Wintrobe and Westergren are extremely easy and simple to carry out, and they may be readily utilized by the general physician in his own office. It would, of course, be preferable for all sedimentation rates to be performed under a standardized technique as the calibre of bore of the tube used, as well as the volume of blood, affect the rate of sedimentation, and in this respect there is a slight variation in the range of normals. With the 5 c.c. Cutler tube the range of normal for women is given as from 2 to 10 m.m. for a period of one hour. With the tubes of smaller bore the range of normal for sixty minutes is taken to be from 5 to 20 m.m., women showing a slightly higher normal sedimentation rate than men.[15] The readings are usually taken every five minutes during the first fifteen minutes and then at fifteen minute intervals for a total of sixty minutes. Recently, the trend has been to correct the sedimentation rate for anemia, using the technique and correction chart of Wintrobe and Landsberg, although in a very recent article Cutler maintains this is unnecessary as well as incorrect for a true result. In using the sedimentation rate as a clinical test, however, it should be remembered that this test is not a specific one for rheumatic fever, but is merely an indication of the presence or absence of active infection.

To date, in spite of numerous transient enthusiasms for various remedies, no specific medication has been

demonstrated for the treatment of rheumatic infection. So far, we have no superior substitute for salicylate therapy. In spite of the universal employment of this drug its effects in this disease are not totally understood as its analgesic effects are not thought to be its sole source of benefit. At one time it was thought that a deficiency of vitamin C accompanied by bacterial infection might be an important part in producing the picture of rheumatic infection. This supposition was partially supported by the fact that Rinehart and his associates found the vitamin C content of the blood was uniformly reduced in rheumatism and rheumatoid arthritis. This theory, however, has not been supported by clinical studies. Finkle and Taylor[17] have offered further evidence to show that rheumatic fever is not directly due to the combined influence of infection and vitamin C deficiency, and that the effect of rheumatic fever on vitamin C metabolism is no different than that of any other infection.

Much interest has been felt in regard to the possible effects of sulfanilamide on rheumatic infection, and although additional reports on this will be forthcoming, the earlier ones are not encouraging. Swift and his coworkers[18] after clinical trial of the drug on a series of cases concluded that the action of sulfanilamide in rheumatic fever, when given in as large doses as could be tolerated after the onset of the disease, exercised little, if any, ameliorating influence on the course of the rheumatism. Moreover, because the toxic by-effects seem to be especially marked in patients with this infection, the drug may have a deleterious influence on the course of the disease.

Salicylate therapy, sedation and removal of foci of infection with other general supportive measures, such as a high caloric, high vitamin diet, constitute the most generally accepted and effective form of treatment. Salicylates are usually administered orally or rectally in doses of 60 to 150 grs. per day, depending on the age and tolerance of the patient. This drug, so far as is known, does not exert any specific effect on the heart. Digitalis is distinctly not indicated even on the appearance of a murmur unless cardiac failure or auricular fibrillation supervenes. The importance of proper sedation can not be too strongly emphasized, especially in the treatment of younger patients. The child with this disease should be kept in a quiet, semi-darkened room away from excitement and noisy surroundings, under constant observation during the acute stages. The level of sedation should be such that the child is awake, but slightly drowsy—quiet and in no discomfort. This is most important in the effort to avoid restless and constant movements, as well as nervous excitement with possible ensuing cardiac damage. Barbiturates may be tried, but the most satisfactory sedation of this type from the standpoint of the patient and the disease process has been obtained with the use of small, interrupted doses of codeine or morphine.

The treatment of chorea differs from the above in that very encouraging results have recently been obtained in this disease with the use of artificial fever therapy. This treatment in itself in its effects would almost appear to be specific, and where it is available it should be used early in the course of the illness in preference to other drugs and forms of therapy. When artificial heat is not available, Nirvanol[25] may be administered in doses of from 5 to 15 grs., three times a day, but in administering this drug care must be exercised to avoid any of the toxic side-effects from the drug itself. Beneficial effects have been obtained in a large number of cases with the careful use of this form of medication. However, it should be discontinued if any evidence of toxicity becomes apparent.

Frequent or serial electrocardiograms should be taken throughout the course of active rheumatic infection to determine the extent, if any, of cardiac involvement. It is not justifiable to base conclusions on the negative evidence of one or two tracings taken early in the course of the disease. The most familiar abnormality of the electrocardiogram is the widely known and recognized prolongation of the auriculo-ventricular conduction time, which is evidenced by prolongation of the P R interval beyond 0.20 seconds. More numerous, however, in the frequency of their occurrence are changes in the Q R S complexes and the R S-T segments. Included in these types of changes are various degrees of slurring or notching of the Q R S complex, prolongation of the duration of Q R S beyond 0.10 seconds, elevation of the R S-T segment above the isoelectric level, and inversion or isoelectric T waves in one or more leads and broadening and notching of the P waves. Other changes such as various forms of bundle branch block, sino-auricular block, A-V block, tachycardias, etc., do occur, but are not on the whole as commonly encountered as those given in the first group. Such

changes may precede any clinical evidence of the involvement of the myocardium or conduction apparatus.[19, 20, 21]

Some of the electrocardiographic changes noted, however, during the acute stages of the infection may return to normal with a subsidence of activity. Such reversible changes are usually taken as evidence that the local inflammatory process has healed without leaving behind remarkable damage or any notable permanent scarring.

The more common complications encountered in rheumatic fever are pericarditis, pleuritis and pulmonary changes. Rheumatic meningitis has been reported,[24] but this is indeed rare. The pulmonary complications are sometimes puzzling. On account of their frequency, they should be emphasized. These, as given by Poynton in Hench's article, are:[7]

1. Massive collapse.
2. Pneumonitis—simulating either a broncho or lobar type pneumonia.
3. Pleural effusion.
4. Acute pulmonary edema.

A most interesting article written by Gouley[23] has very recently appeared illustrating the pathology of rheumatic involvement of the lungs, and this article greatly clarifies the type and occurrence of the various lung complications.

One of the most important phases in the treatment and proper care of the rheumatic patient is the determination of when the patient may safely be allowed up with gradual resumption of his normal activities after the symptoms, temperature and pulse rate have returned to normal. Obviously, it is highly undesirable to enter into the convalescent stage and allow the patient to be up until all evidences of the infection have completely abated, in order to avoid the infliction of permanent organic damage upon an ambulant patient or a recurrence of the process. The best guides as to the cessation of activity are the leucocytosis, Schilling count and sedimentation rate. When these have returned to normal, it may be safely assumed that the infection is no longer active and the patient may be allowed up for gradually increasing periods, followed by gradual resumption of his normal duties or activities.

It has been pointed out by Massell and Jones[6] that in most cases the leucocytosis usually is evident in some degree even after the disappearance of clinical signs. These authors regard the leucocytosis as a non-specific reaction. It should be remembered, however, that in some instances of active rheumatic infection the total white count may remain within normal limits, but when it is elevated in the absence of other known causes, subclinical rheumatic fever should be suspected. Both the Schilling count and the sedimentation rate, however, show very little, if any, variation from the normally expected response and both of these may be taken as fairly sensitive indications of the presence or absence of infection. The Schilling count will very often return to normal from a definite shift to the left two to three weeks earlier than the sedimentation rate. The normal readings of both tests should be used in conjunction with each other rather than alone to determine the absence or presence of latent infection. In chorea,[16] as has already been noted, there is very little, if any, increase in the sedimentation rate. Myocardial failure with edema will affect the sedimentation rate in an unusual manner, causing a previously rapid rate to return toward normal, no matter how active the rheumatic process may be. The treatment of the disease as outlined should in no wise be discontinued before the Schilling ratio and sedimentation rate have returned to normal. This is a most important therapeutic precaution.

It should be realized in dealing with rheumatic disease that there is a very great tendency for a recurrence of the infection to take place after the initial attack. Children and young people, especially, are prone to recurrences of the disease. A recurrent infection may be manifested by the following:

1. Recurrent acute tonsillitis.
2. Acute glomerulonephritis.—This may be looked upon as evidence of a recurrence of the infection after the initial attack.
3. Scarlet fever is usually accompanied or followed by a recurrence of activity.
4. Acute upper respiratory infection.

Every effort should be made to protect the rheumatic patient from upper respiratory infections and active foci of infection. Any infected or suspicious tonsils or adenoids should be removed. Dental and sinus infection should be attended to promptly. While the direct relationship between rheumatic fever and focal infection has not been shown since the etiological agent of the former is as yet uncertain, yet nearly all are in agreement that active focal infection as a predisposing factor should not be disregarded—certainly, after an initial attack.

The general physician can do much for his rheu-

matic patients through a close familiarity and better understanding of the varied symptomatology, complications and frequent recurrences of the disease, and, especially, by a knowledge of the proper means of distinguishing between recovery and subclinical infection.

SUMMARY

1. The etiology and incidence of rheumatic fever have been discussed.

2. The varied symptomatic manifestations of the disease with the differences at the various age levels have been shown.

3. Therapy of the disease has been undertaken, especially in regard to salicylate, sulfanilamide and vitamin C, and, in addition, artificial fever therapy in cases of chorea.

4. Changes in the electrocardiogram have been summarized.

5. Changes in the blood sedimentation rate, Schilling ratio and leucocyte count were discussed.

6. Complications of the disease during the actual course of infection have been given.

7. Recurrences in their several forms have been reviewed.

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DISCUSSION

DR. A. B. HODGES, Norfolk: Every year there are admitted to the hospitals of Norfolk a number of patients suffering from rheumatic fever. Acute carditis is by no means rare, but polyarthritis in its classical form is uncommon. Rheumatic heart disease, of course, is very prevalent. There is great disparity between the number of cases of acute rheumatic fever and those of rheumatic heart disease. This means that often the disease in its early stage is missed.

How can we recognize the early manifestations of the disease? How can we differentiate the beginning of rheumatic fever from the acute upper respiratory infections? In acute rheumatic fever there is tachycardia, an irregular low-grade fever and prostration. Often the blood shows an increase in premature leucocytes and a rapid sedimentation rate. Often the electrocardiogram will show certain characteristic abnormalities.

DR. PAUL CAMP, Richmond: I should like to say just a few words. I did enjoy Dr. Waddill's paper, and he certainly went into the subject in very great detail. I think if we could make a scientific study on all the cases like that it would be very nice. Unfortunately we cannot do that, and by not being able to carry out all of these detailed studies we certainly miss a lot of these cases. As Dr. Hodges said, there are certain types which we overlook. I am more convinced of this by seeing cases later that have developed definite evidence of so-called rheumatic heart disease, in which there is no definite history

of any real rheumatic infection. I do not want to bore you with any statistics here, but when I was working with Dr. Grant, in England, their classifications, or, rather, their criteria, were a little more rigid; and they did not consider anything as rheumatic heart disease unless there was a real history of polyarthritis or chorea or unless at autopsy Aschoff bodies were present. Taking that group as real rheumatic heart disease, we found there were ninety-seven of such cases showing the necessary history and developing a real mtiral stenosis, whereas there were 141 with similar findings of mitral stenosis but without a definite history. Similarly, there were seventy-one cases with aortic regurgitation with a definite history which we classified as rheumatic fever and 121 with indefinite etiology. Therefore, if you follow them through you will see there are over half the cases which do not give a definite history of rheumatic fever. Paul White says that in 70 per cent you probably get a definite history of rheumatic fever and in from 5 to 10 per cent get a definite history of chorea. That, to me, shows there are undoubtedly a large number of cases which in the past have had rheumatic infection which was not recognized. I think, however, the pendulum may be swinging too far the other way now and that all these cases certainly cannot have what we classify as a rheumatic infection or rheumatic fever just because they have a bad cold or something like that. Because we do not know the etiology of rheumatic fever we have to prove they have rheumatic fever or chorea or else have to prove at autopsy they have Aschoff bodies. I used to think that in the South there was a large group which have a mild type of infection which would eventually develop into rheumatic heart disease. I still think that this group exists and by protecting those patients and giving them more rest we may be able to prevent the development of rheumatic heart disease. If you want to use the term "rheumatic state," they might be so classified. Certainly there remain a large group which, though with rheumatic symptoms, will not in the end develop true rheumatic heart disease, I believe.

In regard to the treatment, I think undoubtedly the most important thing, as Dr. Waddill and Dr. Hodges have both emphasized, is rest. I think a lot of common sense has to be used along with all our laboratory procedures, because even after the pulse rate is down and the temperature is normal and we hope to get the laboratory procedures normal, I think if we would be more conservtative and keep the patients in bed a longer time they would be better off in the end. The more we learn about rheumatic fever, or rheumatic manifestations, or whatever you choose to call it, the more we are coming to the idea that, like tuberculosis and like syphilis, it is a chronic infection and that, even though it may become inactive, it is probably smoldering and the least infection will cause the patient to have a flare-up of untoward symptoms. I do not think, however, that every upper respiratory infection means there is a re-infection. I suppose Dr. Waddill means the same thing, that where you get an upper respiratory infection you do get a definite reaction which is probably allergic in nature; but again, until we know what causes rheumatic fever, I do not see how one can say it is a recurrent re-infection unless we get rheumatic myocarditis or pancarditis or chorea or some of the other known manifestations.

I should like to ask if you think that salicylates have any curative value in the treatment of rheumatic manifestations, and if you think those electrocardiograms are characteristic of rheumatic fever.

DR. E. B. ROBERTSON, Danville: I enjoyed Dr. Waddill's paper very much. Just three things occur to me that I think it might be worth while to mention. I had rheumatic fever, and I was treated by a man that thought the salicylates neutralized the toxins. He gave me 120 grains of salicylates a day for three weeks, and it certainly was a bad experience. I think it is worth bearing in mind that you sometimes do harm by pushing the salicylates too far. There is no question that adequate diet is a very important thing, and it is a tremendously hard thing to take a full diet when you have had too much salicylate. Another thing I want to mention is that it seems to me the older patients I see who have had rheumatic fever apparently seem to have had more severe joint manifestations than the younger ones. I saw a woman a short time ago who is now sixty-nine. She had auricular fibrillation and mitral disease, and I asked her if she had had any joint manifestations when she was a child. She said not, but she remembered distinctly lying on the ground and crying with growing pains. I do not recall seeing children, or certainly I have seen very few children in this climate, who had either severe growing pains or joint manifestations.

There is one other point. I believe it is generally admitted that rheumatic fever is, as a rule, a disease of the poorer class. I cannot recall having seen a case of rheumatic fever that did not come from among the lower classes or lower-income groups, where one would assume that the diet is not adequate, or, if they did come from the higher-income bracket, it seems to me that every one I have ever seen was, the parents told me when I pressed them, a child who was choosy about his diet, and they let him eat what he wanted rather than make him eat what he should.

DR. F. C. RINKER, Norfolk: I wish to ask Dr. Waddill to cover one point in closing. We know that infections should be removed. The family physician and the family and the patient, particularly, are interested to know when that should be done, because so frequently following surgical intervention for the removal of foci of infection there is a recrudescence of the original disease; and it seems to me he might touch upon the point of approach of the blood findings to normal before any surgical work is attempted.

DR. WADDILL, closing the discussion: In answer to Dr. Camp's first question, as to whether salicylates are specific in the treatment of rheumatic fever, or not, I am unable to answer that because I do not believe, as I said, we fully understand what salicylates do. There is as yet no evidence with which I am familiar showing that salicylates

exert any specific effect on the infection. They do, of course, have an analgesic effect, as you all know, but I do not believe we can answer whether salicylates are in any way specific for the infection locally or generally. As to my own personal opinion, I do not believe they are, but I do think that salicylates are perhaps the best drug we have at present with which to treat the infection.

With regard to whether the electrocardiograms shown are specific for rheumatic fever, emphatically no, because those you saw on the screen were not specific for any one type of infection. I pointed those out merely as showing certain myocardial changes and conduction changes, and of course those changes can occur in other conditions. If, however, they occur in the course of an acute rheumatic infection, they are interpreted to mean that that infection has reached either the myocardium or some part of the conduction apparatus.

Of course not all respiratory infections, even in the rheumatic patient, are evidence that the disease is again present. As Dr. Hodges brought out, I think the important thing is to watch these cases of upper respiratory infection, especially in rheumatic patients, and where we see a severe upper respiratory infection with fast pulse and some prostration of the patient, I think there is a suspicion that more than an upper respiratory infection exists. I think they can be differentiated somewhat on the basis of whether the leukocyte count is elevated or not, because, as you are all aware, ordinary grippe or "flu" is accompanied not by leukocytosis but by a leukopenia in the uncomplicated cases. The sedimentation rates, on the other hand, either in grippe or "flu" or even in chronic tonsillitis or chronic focal infection, are not depressed to the level they are in a rheumatic infection, so I think those clinical facts, as well as the interpretation of the two tests, will help a great deal in telling us with what we are dealing in simple or complicated upper respiratory infections.

It is perfectly true that in giving salicylates we do have to watch out for the side-effects of the drug. That can be gotten around a little bit by giving sodium bicarbonate with the sodium salicylate, to help relieve the gastric effects; or we can give the drug by rectum, which helps still further to get away from the upsetting effects of large doses of salicylates on the gastrointestinal tract. I fully agree that in young patients of small stature and weight the giving of salicylates can be overdone.

As Dr. Rinker, I believe, brought out, the handling of focal infection in a rheumatic patient is to treat the focal infection locally during the duration of the disease and not attempt surgical treatment until the white count and the sedimentation rate are all on the normal line.

ALCOHOL OR CANDY.*

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It seems a pity that a substance which has brought so much pleasure and conviviality into this weary world as alcohol should have by its abuse also brought untold misery and suffering. But, finishing the title of Dr. Strecker's recent book, *Alcohol, One Man's Meat*—is another man's poison.

The ramifications of the endeavor to handle the alcohol problem are vast. Out of the attempted solution has grown hate—the hate of those who do not drink for those who do and the hate of those who do for those who advocate total abstinence. In truth the whole question is usually approached with emotion rather than with reason. And so the silly "noble experiment" of prohibition was fostered upon an unthinking and an immature nation—an experiment that created bootleggers, set up hypocrisies, fathered political corruption, nurtured gangsterism, and hugely increased drinking. Nor was the question solved by the overthrow of prohibition. Many of the hangovers of our national spree of prohibition are still with us and some sovereign states have sublimated by going into the liquor business! So each individual will have to work out his or her own liquor problem, bearing in mind that those who sing "One more drink won't do us any harm" are probably creating a problem for themselves.

Statecraft, law, uplift, and ballyhoo having failed, it may be up to medicine to play her hand even this late in the game. Let us admit in the beginning that medicine has been dealt a rather bad hand, that on the whole she has been a poor player, and that in drawing she has not filled any straights, flushes, or full houses. Medicine in this state has been bluffed by a poker-faced legislature in ordering a book to be written by representatives of the state's two great medical schools, which, when produced, although highly instructive and potentially of great benefit, was ill-advisedly cast aside. This book, *Alcohol in Moderation and Excess* by Doctors Waddell and Haag,—Strecker's *Alcohol, One Man's Meat*,—Emerson's *Alcohol and Man*,—and other medical

*Read before the Richmond Academy of Medicine.

writings are all helpful in the attempt to understand the subject of alcoholism. But there is still much to learn.

The present paper is preliminary and only intended to be suggestive. To clear the ground it may be well to state a few of the mooted questions. It has been said that alcohol is not a stimulant; still, many of us believe that under certain circumstances it is. I remember very well, when I was an intern, seeing a post-operative case suddenly collapse and become pulseless and cyanotic. As nothing else was immediately available I drew up a hypodermic syringe full of French brandy, which happened to be on the bedside table, and injected it subcutaneously, and then another syringe full. In a few moments the pulse began to come back, then the cyanosis rather rapidly cleared, and in a few minutes circulation was reestablished. It has also been stated that alcohol has no place among medicinal remedies, but whoever thinks that is so can hardly have closely observed its use after influenza or pneumonia, after exposure to cold, in cases of anorexia, or in the various states and conditions attending old age. But it is not to questions of this sort that I shall address myself.

What is meant by the term alcoholism? Surely not the occasional or the moderate libation of alcoholic beverages! However, one must realize that to many individuals alcohol is a dangerous and a habit-forming drug. But one must also realize that its action is peculiar in that it may be chronically habit-forming in one individual and temporary in another, hence the chronic and the periodic alcoholic. I shall not here discuss the intoxicating and deleterious effects of alcohol either somatically or socially for they are only too well known. I feel that we as physicians have adopted too much of the layman's attitude toward the unfortunate victims of alcohol and that we apply to them an emotional reaction of compassion or disgust rather than the more scientific viewpoints of cause and prevention.

The doctor who is called to see a so-called "drunk" and gives him a "shot" of morphine or loads him up with paraldehyde, reduces more or less gradually his alcohol and sobers him up to get "drunk" again, has not done his duty to the patient, to medicine, or to society. It may be that this "drunk" is a constitutional defective and a menace to society and needs to be for a long period or permanently in an institution. It may be that he is a psychoneurotic with weak resistance and is frustrated by the ordinary impingements of the vicissitudes of life. It may be that he is an average man upon whom the hand of devastating fate has laid so heavily that he feels he has to obtund his consciousness with alcohol. It may be that from without a nagging wife (or in a woman an inconsiderate husband) or from within a guilt sense makes the escape into alcoholism seem imperative. Most of us have poorly developed inhibitions. Or, on the other hand, may there not exist a hypoglycemic state which is starving the patient of sugar and for the satiation of his hunger he turns to whiskey rather than to candy? Under any circumstances *the alcoholic has a cause for his alcoholism* and it is up to us to endeavor to find out if possible what that cause is.

In an attempt to find out if there is not a group of alcoholics who are sugar-starved I shall first make a few general observations in which I think you will agree. It seems to be generally observed that most hard drinkers do not care for sweets. Is it not so that shortly after national prohibition became effective and until bootlegging became firmly established there was a period of "boom" for all of the manufacturers of candy? With these observations in mind I have queried a good many alcoholics and only the day I am writing this a periodic alcoholic told me that he ate no sweets while drinking but that as soon as he stopped he ate candy for a while by the pound. Some have told me that they would stave off drinking for a while by eating an excess of sweets. I have also observed that the men who put sugar in their liquor did not seem to imbide as heavily as the whiskey and water or highball drinkers. Certainly one sees more drinking among straight or highball whiskey or gin drinkers than among cocktail, punch, wine, and toddy drinkers. And, I believe, the individual with a "sweet tooth" may induce dental caries but rarely fills a drunkard's grave.

If the statements above made have any virtue to them, then it behooves us to try to substantiate them. My experience is very limited and I look to those of you who can to help me in this investigation.

Masters,[1] in 1935, in a paper on sugar metabolism, felt that there was an apparent relationship between cerebral oxygenation and the sugar level and called attention to the fact that if oxygen is administered just after an intoxicating dose of al-

[1] *Southern Medical Journal*, March, 1935, Vol. 28, No. 3, pp. 254-258.

cohol is given no symptoms of intoxication appear. I think, then, we may draw the inference that if sugar, which should increase the cerebral oxygen, is given, the intoxicating effect of alcohol should be less.

Bastedo[2] states that alcohol can spare or replace carbohydrates in the food for a time. Alcohol or whiskey of itself does not contain sugar in an appreciable quantity. In looking over one hundred and forty-five papers and books on alcohol and alcoholism, I could find only one paper throwing any light or experience in studying blood sugar or sugar tolerance in alcoholics. Edkins and Murray[3] describe experiments in which they compared the tolerance of three persons to 75 gm. of dextrose taken alone and with alcohol. They noted that the alcohol increases absorption, as shown by a more rapid rise in blood sugar. After alcohol the sugar in the blood falls more rapidly. I could find nothing of importance upon the therapeutics of giving glucose or other sugars for the correction of alcoholism.

The chemical formula for alcohol and that for carbohydrates is closely related:

C_2H_5OH—ethyl alcohol

$C_6H_{12}O_6$—dextrose or glucose

$C_{12}H_{22}O_{11}$—cane sugar.

It would seem that moderate ingestion of alcohol does not elevate the blood sugar, but that excess probably does.

Another question is, what is the fasting blood sugar of an individual who has been a chronic alcoholic and has been taken off of alcohol for a considerable period? This is best illustrated by one of our recent cases—a young man of twenty-five who had been drinking quite steadily since he was fifteen years of age. After he had been taken off of alcohol for two weeks his blood sugar was 58 mgms. In a few days a sugar tolerance test was done which was as follows: at one hour intervals his curve ran—fasting 60.5 mgms.; 65 mgms.; 52.5 mgms.; 47.5 mgms., 57.5 mgms.; and 55 mgms. Then he was put on two pieces of cream-mint candy about three-fourths of an inch square thrice daily and his craving for drink left and his blood sugar came up to 70 mgms., but he still had some lack of energy. His candy was increased to three pieces three times daily and he was given pancrépatine. In twelve days his blood sugar rose to 82 mgms. Before he left he had been all over town by himself for a month, had not taken a drink, did not crave a drink, and had regained his energy.

In the treatment of *acute alcoholism* we have been saved much trouble, instead of giving the patients hypnotics and narcotics and gradually reducing the alcohol, by treating them as follows:—When we see a patient who is acutely intoxicated, whether he has been drinking a short time or a large quantity over a considerable period, we give him 50 cc. of 50 per cent glucose intravenously or sometimes the same quantity of sucrose (sucrose is thought to give less later increase in the cerebro-spinal fluid pressure) and none or one drink of whiskey. If he comes under treatment at night we give him the same quantity of glucose the next morning followed in twenty or thirty minutes by 15 or 20 units of insulin. Insulin seems not only to help regulate the metabolism, but also to act as a sedative and enable the patient to take more nourishment. As a rough rule, those patients accustomed to one pint of whiskey a day require glucose two or three times and insulin once or twice; those taking a quart a day require more, the glucose and insulin being regulated by the patients's condition. Nearly all patients are off of alcohol from the time they come under treatment or have one or two drinks for a day or two, and they sober up as a rule in twenty-four hours. Those who are what they call "jittery" or are not eating well get insulin, ten or fifteen units three times daily before meals, for a few days longer. If a patient looks as if he is going to develop delirium tremens, and there are only a few of them who do if started on glucose and insulin, we do lumbar puncture drainages. If depression and tremors are marked symptoms we give benzedrine sulphate, 10 mgms., orally two or three times in the A. M. several hours apart.

If a patient has an enlarged liver or if the blood sugar is persistently low after taking him off of alcohol, we have given one or two cases either pancrépatine which contains the enzymes of the pancreas and the liver, or suprarenal gland extract, in the hope of making more available to the body tissues the glycogen stored up in the liver.

In chronic wet-brain cases we give them either hypertonic 50 per cent glucose, followed by frequent, often daily, lumbar puncture drainages, or 250 cc. of 25 per cent glucose followed by spinal drainage in four hours. In a recent case a patient who does not

[2]Materia Medica, Pharmacology and Therapeutics—Bastedo (1932). W. B. Saunders Co.

[3]*Jour. A. M. A.*, Vol. 97, p. 281 (1931).

remember anything at all about his first several weeks in the hospital and who was for weeks delusional, hallucinatory, and confused, regained his orientation and his mind cleared. He was able to go home in several weeks more and resume a very responsible financial position.

Among the most interesting alcoholics are the periodic drinkers. Individuals of this sort are often brilliant and accomplish a great deal during their abstinence. The desire to drink comes over them apparently without cause and many of them after weeks of heavy drinking will stop as suddenly as they began. Undoubtedly some of these cases have manic depressive psychosis and they drink to help overcome their depression, but I am persuaded that others are due to deficiency in sugar metabolism and instead of turning to sweets they turn to liquor. To illustrate: One was a non-drinker, a man who told me he would go for a considerable time at top speed with heavy responsibilities and then he was so exhausted that he felt he must get some relief and he found he got relief by eating candy for a while, as much as a pound a day. Some periodic alcoholics, like many, were very intellectual and their work necessitated being under considerable strain, usually more or less of an emotional character. After these strains they would take to liquor, and then of themselves would quit it short and would not want nor take any more until the next period of exhaustion. In several of these, when I could get them to have it tested, I have found a lowered blood sugar. The trouble is that it is hard to get them to come in for a fasting blood sugar just previous to a spree.

But the giving of sugar and the glucose-insulin treatment with or without spinal punctures is not all to be done for alcoholics regardless of type. Hydrotherapy baths are helpful in all cases and so is full nourishment. A thorough medical and neuropsychiatric examination is necessary. Enlarged livers, nephritis, neuritis, and other conditions often come to light and require special treatment. To thoroughly study a case an adequate neuropsychiatric history is essential and should be followed by psychotherapy and a process of re-education which as a rule has to be applied to the family as well as to the patient. A study of the carbohydrate metabolism and of the patient's habits as to eating sweets should be uniformly made. The confidence of the patient should be so gained that he will report when required, even though he may have been perfectly sober for varying periods, for a blood sugar and at times a sugar tolerance check-up.

In closing let me say that I, of course, do not for an instant intend to imply that alcoholism is simply a question of hypoglycemia, but I do believe that there is a group, how large I do not know, of both periodic and chronic alcoholics who drink because of a blood sugar deficiency and who can control their alcoholic propensities if they take sufficient carbohydrates. If this proves to be so the title of this paper is not facetious.

212 West Franklin Street.

BRONCHIECTASIS: A CONSIDERATION OF ITS CAUSES AND ITS PREVENTION.*

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Bronchiectasis as it is commonly observed usually is secondary to other causes. It may occur congenitally as a primary condition. It is important to bear in mind that non-tuberculous bronchiectasis commonly involves a lower lobe; begins in the smaller bronchi; is relatively common in children; the symptoms and physical signs in the early cases are not characteristic and diagnosis often is difficult. Since bronchiectasis commonly is secondary to previous disease its causes and prevention should afford a wide field for study to the general practitioner as well as the internist who is interested primarily in pulmonary disease. In discussing these phases it is important to say a word concerning prognosis, methods of diagnosis and also results of treatment.

It is difficult to give a satisfactory prognosis. There are few reports in the literature; the number of patients studied is small and the cases have been observed for relatively short periods. It is the general opinion, however, that bronchiectasis increases

*Read as part of the Symposium on Diseases of the Chest at the meeting of the Southside Virginia Medical Association, March 21, 1939, at Franklin, Va.

morbidity, that serious complications may develop and that often the disease leads either to early death or chronic invalidism. The late Professor Thomas McCrae was quoted as stating that "if he were afflicted either with bronchiectasis or tuberculosis he would prefer tuberculosis!" This gives one an insight into the serious nature of bronchiectasis.

In the advanced case the diagnosis usually can be made without difficulty. Obviously this type of case can be offered little from the standpoint of treatment. Diagnosis to be helpful should be made in the early stages of the disease. Cough is commonly productive although in children there may be no sputum expectorated. There usually are auscultatory findings over the involved lobe or lobes. The roentgen ray appearances although not characteristic in early cases usually exhibit heavy root shadows with increase in the bronchial markings. In the obstructed forms there may be clinical and roentgen ray evidence of atelectasis or of pulmonary fibrosis. The most important diagnostic measures consist of the instillation of iodized oil into the affected bronchus or bronchi followed by roentgen study and bronchoscopy, particularly when there is evidence of bronchial obstruction. In the early, non-obstructed case bronchoscopy gives relatively little positive information. Many methods of introduction of iodized oil are practiced. It is important that the oil be instilled into that portion of the air passages that is to be mapped. In all forms of obstructive bronchiectasis a bronchoscopic examination is necessary in order to make an etiologic diagnosis and also for a consideration of the plan of therapy to be instituted.

Medical treatment, which includes rest, postural drainage, vaccine therapy, bronchoscopic aspiration, various forms of medication, intralaryngeal instillations of iodized oil or other medicaments, removal of foci of infection and irradiation is, as a rule, not curative, although much can be accomplished to prevent extension of the process. Under favorable conditions the bronchial infection may be reduced but the bronchial dilatations remain more or less permanently. As a result reinfection with recurrence of all the symptoms is common. The only plan of treatment that is curative is surgical amputation of the diseased portion of lung. This too has its limitations.

With this brief résumé of bronchiectasis its causes will be considered. In the older textbooks there is much thought given to the influence of cough as a distending force. While this may exert some influence, it undoubtedly is of secondary importance. In my opinion the two outstanding factors in the etiology of bronchiectasis are infection and obstruction of a bronchus. Obstruction undoubtedly plays a very important part since it is associated with retention of secretions which commonly become infected and interference with drainage and normal pulmonary ventilation. This has been repeatedly demonstrated in patients who had aspirated foreign bodies into the bronchi. In a study of a considerable number of patients in whom bronchial foreign bodies lodged in the bronchus for a considerable period of time, producing bronchial obstruction with retention of secretions and infection of the lung distal to the point of obstruction, it was found when iodized oil was instilled following removal of the foreign body that in practically every case there was bronchiectasis. This has also been observed in cases of bronchial obstruction secondary to broncholithiasis and benign tumors. The triangular area of atelectasis commonly observed in the right costophrenic angle of children usually represents bronchial obstruction due either to inflammatory tissue, inspissated secretion or peribronchial lymphadenitis with compression stenosis. If these are investigated bronchoscopically and ventilation and drainage instituted and later iodized oil is instilled it will be found that there often is present bronchiectasis. If the atelectasis is of long duration one can be assured that the bronchi are dilated. The causes of non-obstructive form of bronchiectasis are not so readily explained since there is an absence of bronchial obstruction and on bronchoscopy one finds a patent bronchial tree. Often there is no history suggesting pulmonary infection other than measles with a complicating broncho-pneumonia occurring in childhood. It is quite possible that the broncho-pneumonic process was associated with production of thick secretions which produced temporary bronchial obstruction. It is also quite possible that the pneumonic process involved the peribronchial tissues with secondary changes in the bronchial wall, replacement of elastic tissue by fibrous tissue and ultimately the development of bronchiectasis. It was clearly demonstrated during the influenza epidemic of 1918 that bronchiectasis developed early in the course of the so-called influenzal pneumonia. It was shown at post-mortem performed on those dying during the third or fourth day of the influenzal pneumonia that bronchi in the affected area were dilated to six and eight times the size of the normal lumen. Obviously

one cannot state whether patients recovering from pneumonia without a complicating bronchiectasis exhibited bronchial dilatations during the course of the pneumonic process.

The influence of disease of the accessory nasal sinuses on bronchiectasis is a perplexing question. Although much work has been done to demonstrate lymphatic pathways it is very probable that there is no transference of infection by this route. Aspiration of infection into the trachea probably could be considered a predisposing factor. More often, however, the patient with sinus infection, particularly the child that might be described as being of a lymphatic type, appears to be predisposed to acute respiratory infections. It is not uncommon to elicit a history of several attacks of pneumonia during the course of a winter. There usually is a severe bronchial infection, probably a broncho-pneumonia, and under certain conditions this is followed by a bronchiectasis. The more frequent employment of bronchoscopy and iodized oil for lung mapping and investigation of the accessory nasal sinuses of children who frequently contract acute pulmonary infections would be helpful in ascertaining data on this subject. Too often we see these patients a number of years after the onset of the disease when there is an extensive bronchiectasis and chronic sinus infection.

The question of allergy has been raised in these cases. While little investigation has been done it would seem that this matter should be studied particularly in the non-obstructive forms of bronchiectasis.

"An ounce of prevention is worth a pound of cure." In bronchiectasis, prevention is worth infinitely more than this and every effort should be made to recognize certain of the predisposing and exciting factors so that appropriate measures could be instituted early. It would seem obvious that prompt relief of bronchial obstruction would do much towards preventing the development of complications, notably bronchiectasis. It has been the experience of everyone doing bronchoscopy for foreign body that lung changes distal to a recently aspirated obstructing bronchial foreign body are slight and recovery usually occurs promptly when the object is removed. In the long duration case associated with bronchial obstruction, however, there usually is present bronchial suppuration and roentgen ray evidence of extensive pulmonary change. While removal of the obstruction commonly is followed by remarkable improvement, suggesting complete restoration of pulmonary function, if iodized oil is instilled for diagnostic purposes a majority of these patients will exhibit bronchiectasis.

A number of cases of benign neoplasm have been observed in which there were symptoms of cough and expectoration of large quantities of pus. It was of interest to note that in certain of these the primary diagnosis was pneumonia. With failure of the area of apparent consolidation to clear the diagnosis was changed to unresolved pneumonia. More often than not, unresolved pneumonia never was preceded by pneumonia; rather, there was bronchial obstruction with pulmonary infection which exhibited certain of the signs of pneumonia. In these, bronchoscopy is a very important aid not only from the standpoint of diagnosis but also for the purpose of treatment.

To summarize briefly, every case of bronchial obstruction should be considered as a potential case of bronchiectasis. The causes of bronchial obstruction are numerous. It may be produced by aspirated foreign bodies, new growth—either benign or malignant, —accumulation of bronchial secretions as in postoperative pulmonary atelectasis, or in pneumonic processes, particularly in children, granulation tissue developing during the course of an acute pulmonary infection, broncholithiasis and compression stenosis from peribronchial neoplasm, inflammation or tuberculosis.

Areas of atelectasis should be recognized promptly and should be interpreted in terms of bronchial obstruction rather than unresolved pneumonia. Failure of an area of atelectasis to clear promptly following medical measures should be considered as an indication for bronchoscopic investigation both for purposes of diagnosis as well as treatment. Delay promotes retention and stagnation of secretion, infection of the bronchial wall and ultimately the development of bronchiectasis.

1530 Locust Street.

NUTRITIONAL DEFICIENCY DISEASE—WITH SPECIAL REFERENCE TO VITAMIN B DEFICIENCY.*

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The subject of nutrition is becoming more engaging to the educated public each year, and the medical practitioner must not only be able to prescribe diets in specific illnesses, but also it behooves him to be able to translate into everyday language those factors which fulfill the requirements of a perfect diet in answer to the queries of his intelligentia.

The intelligentia are aware of the fact that nutritional deficiency disease is due to an inadequate supply, faulty absorption or improper utilization of essential elements normally found in the body. I think it is generally recognized by the layman that pellagra, scurvy and beri-beri are states of health produced by an inadequate supply of vitamins. This lay understanding has resulted from a tedious process of education carried forth by the clinician. Physicians themselves are not possessed with a complete revelation of all of the clinical manifestations which confront them, but investigation and research are slowly and accurately clearing the debris from about us. Only recently have we come to recognize many of the deficiency diseases and their ramifications. We have been almost as slow as Pasteur's adversaries in accepting the "newer concept" of the pathogenesis of many clinical manifestations observed daily. It would be impossible in the scope of this paper to discuss fully all nutritional deficiency diseases; therefore, I shall limit my discussion to a few of the proven vitamin B deficiency diseases.

Our concept of vitamin B, until recently, has been rather limited. Within the last few years its chemical nature has been shown to be a complex one, many of its components having been synthesized, and are available for therapy in specific vitamin B deficiency diseases.

A great many patients, presenting themselves for medical attention, are suffering as a result of some form of vitamin B deficiency. There are many factors coming into play in the production of this state of health. It would be well to consider a few of them briefly.

The body reserve supply of vitamin B is a variable factor in different individuals; many of us are prone to have likes and dislikes in the matter of eating vegetables which are the chief source of vitamin B. The preparation of vegetables likewise has much to do with the vitamin content; more especially if they are boiled in water and the water is thrown away. Vitamin B being water soluble, much of it is thrown away with the "pot liquor". Therefore, the quantity ingested may be deficient either as a result of faddism in diet or in the preparation of the food. Pellagra is probably the most common disease seen in the South, resulting from faddishness in diet. This disease is no respector of persons or walks of life. It is generally accepted that it occurs in those people who fail to ingest an adequate supply of the P-P- factor of vitamin B.

The body supply of vitamin B may be depleted by certain toxic conditions which either interfere with the proper absorption, or it may be eliminated before it is absorbed. I have in mind such states of health as might produce nausea, vomiting, or diarrhea. There are also conditions of the body requiring a greater amount of vitamins and mineral salts than would be necessary under basal conditions. In this category one would consider such conditions as pregnancy, lactating mothers, hyperthyroidism, and the laboring class of individual. Under such circumstances the basal requirements would have to be augmented. On the other hand, the supply might be sufficient, but for any one of several reasons the absorption might be faulty. In any type of toxemia there is an impairment of absorption of all kinds of food materials. The mucosa of the intestinal canal may become irritated from many causes and as a result its absorptive powers will be impaired accordingly. This is certainly true in the late stages of sprue, beri-beri, pellagra and Addison's disease. Often, in our efforts to overcome some symptom of our patients, we resort to devious means. This is particularly true in constipation. We employ every drug from mineral oil to calomel. I am confident that in every instance we insult or impair the absorptive powers of the intestinal tract. There is definite evi-

*Read before the sixty-ninth annual session of the Medical Society of Virginia, at Danville, Va., October 4-6, 1938.

dence that mineral oil retards the absorption of vitamin B from the intestinal canal.

The supply of vitamin B may be adequate and its absorption perfect, but it may not be properly utilized by the tissues of the body and a deficiency state of health ensues. It is thought that a diet high in carbohydrate content will retard the utilization of vitamin B by the body tissues. This is questionable, however, since it has been shown that if the two are properly balanced a deficiency state will not develop in animals. One author expressed the opinion that vitamin B acted as a catalytic agent in the presence of a high carbohydrate diet and all that was necessary to prevent a deficiency disease from developing was to have a sufficient amount of vitamin B present in the diet. At any rate, vitamin B plays some role in the metabolic transformation of carbohydrate in the organism. Just exactly what occurs in the toxemias of various sorts is not clearly understood. We are all aware of the anæmia and neuritis which develop in lead poisoning, but we are uncertain as to the exact nature of the pathological physiology. Iron alone is not an antidote for such an anæmia, nor are we certain that the neuritis is due to the toxic effect of the metal lead, or whether it is due to an insufficient amount of vitamin B.

Thus far we have considered several factors which play a role in the production of avitaminosis. The most common manifestation of avitominosis B_1 is anorexia and gastro-intestinal hypotonicity. It has been clearly demonstrated that deprivation of vitamin B_1 in the diet results in the loss of the urge to eat. The loss of the urge to eat may be partial or fairly complete. I do not mean by this, however, that anorexia is entirely dependent upon the presence of vitamin B_1 in the diet, for there are other essential elements in a basal diet, but in laboratory animals the loss of appetite is commonly the first symptom of vitamin B_1 deficiency to occur. The sequel of vitamin B_1 deficiency is anorexia and intestinal hypotonicity. Cowgill, Devel, Plummer, and Messer established the association of gastric atony with vitamin B deficiency by the use of a gastric fistula in dogs. By fluoroscopic examination of the intestinal tract of these dogs they demonstrated a hypomotility. From this experiment one would be justified in making the deduction that atonic constipation was a common symptom of vitamin B deficiency.

Little will be said about achylia and achlorhydria, for they are generally recognized as being associated with vitamin B deficiency.

Hoobler states that "mild symptoms of infantile beri-beri are quite common in this country." He has shown that both human and cow's milk are deficient in vitamin B content. Furthermore, he describes the symptoms of "partial vitamin B deficiency in infants as anorexia, loss of weight, spasticity of the arms and legs, rigidity of the neck, restlessness and fretfulness, and a strange plaintive cry." Upon the addition of vitamin B to the diet, he noticed that after two weeks "the infant changed from a fretful, pale, spastic, whining baby, refusing part of its food, to a happy rosy-cheeked, smiling baby, whose appetite never seemed completely satisfied and whose gain in weight was remarkable." He concludes that every baby should have vitamin B added to his diet and "it should not depend upon milk, either human or cow's, as its only source of this vitamin." This report and experience of Hoobler have been confirmed by other investigators in this field.

Anorexia resulting from vitamin B_1 deficiency is in no wise confined to infants and children. Cowgill reported that Newburgh succeeded in increasing the voluntary intake of food in a mentally incompetent woman from 400 to 2,000 calories of food a day by the administration of vitamin B.

There is also a growth factor in vitamin B which should be of interest to the members of this society, particularly those who are practicing general medicine. Morgan and Barry have shown conclusively that a diet deficient in vitamin B is a factor in limiting the growth of American school children. Ross and Summerfeldt corroborated this work by making a carefully controlled study of three groups of from twenty to twenty-three children in each. They found that upon the addition of the vitamin B complex to a good diet the increase in weight of these children was 1.6 times that of the normal expected weight over a period of six months.

In the order of their frequency the neuritides should receive some consideration as a vitamin B_1 deficiency disease. Every physician at one time or another has had an experience with alcoholic polyneuritis. Every report which I have reviewed in the medical literature indicates that polyneuritis observed in alcoholics is due to vitamin B deficiency which is produced by a lowered intake of food, because of poor appetite and by faulty absorption due to the presence of excessive amounts of alcohol and not to

the toxic action of alcohol on the peripheral nerves. At any rate, it can be cured by the administration of vitamin B_1 even though the amount of alcohol consumed is increased.

Strauss, Minot, and Cobb at the Harvard Medical School studied a series of fifty-seven cases of undoubted alcoholic polyneuritis. They were impressed by the striking similarity of alcoholic polyneuritis and the polyneuritis observed in beri-beri. The food intake in alcoholic polyneuritis as in beri-beri is rarely ever adequate. Moreover, in a large majority of instances the food consumption has been inadequate for a number of years. There results a general hypo-glandular function of the body and a great number of the sequelae which follow these disorders.

Occasionally obstetricians observe polyneuritis during pregnancy. According to the observation of Strauss and McDonald they believe that polyneuritis of pregnancy is a vitamin B_1 deficiency. They advance the following reasons for their belief:

1. The polyneuritis of pregnancy is preceded for many weeks by severe vomiting which prevents the ingestion and absorption of food.
2. Diminished gastric function frequently accompanies pregnancy.
3. Excessive demands of fœtus on maternal organism for vitamin B.
4. Clinically and pathologically it resembles polyneuritis of beri-beri and alcoholism.
5. Its incidence is higher where beri-beri is common. Similar observations have been made by other investigators in divergent sections of the country.

Probably the most comprehensive report on polyneuritis of various sorts was that of Voohous, Williams, and Waterman. They reported that they obtained a "gratifying response" in the treatment of polyneuritis in general by the administration of vitamin B_1.

Little will be said about beri-beri, the most classical of all vitamin B deficiency diseases except to mention briefly the cardiac manifestations of the syndrome which have given rise to the term "beri-beri heart". Weiss and Wilkins concluded recently that of the vitamins, vitamin B_1 deficiency was the most important cause of cardiovascular disturbances. These observers state that cardiovascular as well as neurological manifestations are of regular occurrence, and from their observation the most common cardiovascular symptoms are dyspnea with palpitation, tachycardia and embryocardia.

The scope of this paper will not permit a complete discussion of vitamin B_2 or the G complex, but it will be interesting to mention the work of Aykroyd and Kirshman on the treatment of stomatitis in malnourished children. This is a condition developing in malnourished children similar in every respect according to their observation to the "stomatitis observed in pellagra" though it was not accompanied by other signs characteristic of pellagra such as diarrhea, and dermatitis. They administered autoclaved yeast to these children and concluded that the factor which cured the stomatitis was identical to the pellagra preventive factor.

One might also mention the work of Sure and Thatcher in the production of gastric ulcers in the albino rat by feeding it a vitamin B deficient diet. As a result of this work it has been suggested that vitamin B deficiency in the human being may play an important etiological role in the production of peptic ulcer. It is, therefore, felt that gastro-enterologists would do well to bear this fact in mind in treating patients who have peptic ulcers. Some concentrated form of vitamin B could be easily administered.

I have been unable to find anywhere in the literature a specific reference to the so-called "aphthous ulcers" of the mucous membranes of the mouth. The nearest approach to this subject was the observation of Aykroyd and Kirshman of stomatitis developing in malnourished children in India. I studied the description of their cases carefully and I was unable to find any mention of "aphthous ulcers". I do not have in mind those people who may have an aphthous ulcer once in a lifetime. On the other hand, we are seeing people frequently who give a history of having had a great many aphthous ulcers from time to time.

I have a very definite recollection of having been taught that trauma was the etiological basis of aphthous ulcers of the mucous membranes of the mouth and that occasionally there might be a superimposed infection. The accepted type of treatment as taught in those days was cauterization of these ulcers with a weak solution of silver nitrate.

During the past few years, I have seen a great many cases of aphthous ulcers of the mouth. They more commonly occur in the floor of the mouth, beneath or on the margins of the tongue. Less frequently they are seen in the roof of the mouth and on the buccal mucous membranes. As mentioned

above, Sure and Thatcher were able to produce gastric ulcers in albino rats by feeding them a diet which was deficient in vitamin B. The body reserve of vitamin B is a variable factor in different individuals, and I am inclined to believe that those people who have these ulcers have a faulty mechanism of some sort operating in their bodies. Either any one of, or several factors must be coming into play, in that the body reserve of vitamin B may be low in these people, the absorption faulty, or its proper utilization may be interfered with in some way. At any rate, I have been convinced, from clinical observation, that upon the administration of brewers' yeast these ulcers disappear.

I have several patients who heretofore have not been able to obtain relief from any sort of treatment, but by taking yeast at irregular intervals they have been free of ulcers for a longer period of time than ever before. I am not certain what factor of vitamin B it is, but I feel definitely certain that it is a vitamin B deficiency state.

SUMMARY

1. The body reserve supply of vitamin B is a variable factor in different individuals.

2. There are certain factors to be considered in the development of a deficiency state:

1. Supply
2. Absorption
3. Utilization.

3. A few proven vitamin B deficiency conditions are discussed:

A.—B_1

1. Anorexia
2. The growth factor of vitamin B_1
3. The neuritides
4. Beri-beri.

B.—B_2

1. Stomatitis
2. Gastric ulcers in albino rats.

4. Aphthous ulcers are considered a vitamin B deficiency disease.

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DISCUSSION

DR. T. NEILL BARNETT, Richmond: Absorption from the intestine is dependent on the activity and pumping movements of the villi in the mucosa of the bowel. Meissner's plexus has recently been found to be the regulator of villous movements and is stimulated directly by mechanical stimuli and reflexly by local chemical stimuli in the villous epithelium. "In recent experiments (by Mathieu, Veizar, and McDougall) it was found that vitamins B_1 and B_2, when applied locally or intravenously, had no action on the villous movements. However, "Bios", the substance which increases yeast growth (from Dr. O'Brien of Oxford) a concentrated impure dark fluid with an intense smell of yeast extract when applied locally, gave an enormous villous activity". This is of interest from the question of the value of this vitamin in nutrition, and serves as an explanation of the superior results obtained in the use of the liquid vitamin B extract from a nutritional adjuvant. Impure yeast preparations are probably of more value than refined preparations of pure vitamin B.

Vitamin B deficiency is more prevalent than it is generally thought to be, especially if the early mild cases are taken into consideration. If these mild cases were recognized early by such symptoms as anorexia, mental and physical fatigue, altered bowel function, eructation, etc., in the absence of organic disease, the advanced cases that anyone can recognize would seldom be encountered. It is not difficult to understand the prevalence of B avitaminosis, if we remember that this vitamin has to be constantly replenished, as vitamin B is not stored up in the body as a reserve.

Vitamin B has the ability to restore or regulate the tone of the intestinal musculature to a normal state, as is evidenced by the beneficial results of its use in the functional types of constipation, such as the redundant sigmoid and the irritable howel. Excluding organic involvement, constipation is the result of deficiencies—chiefly vitamin B and the hypothyroid state. Many sufferers can be adjusted by making up these deficiencies. Even the enigma of the spastic colon oftentimes yields to the judicious use of vitamin B given over a long period of time.

The observation by the essayist of the "aphthous" ulcer of the mouth is timely and I believe well founded. I can remember some five or six cases in my practice, all of which were constipated to the extreme degree, who with the use of vitamin B extract (liquid) were relieved of their constipation and also their ulcers. One of them observed that she had not had any ulcer since her constipation was relieved. Her constipation was treated with vitamin B. The tongue lesions and aphthous ulcers are mucous membrane manifestations of vitamin B deficiency and are analogous to skin lesions as found in the same condition.

Early low grade vitamin B deficiency may be the etiological factor in many indefinite digestive disturbances that are now poorly understood.

DR. WILLIAM B. PORTER, Richmond: I should like the essayist to clarify for me in his discussion whether he is referring to B_1 or some other component of the B vitamin fraction. Our impression is that aphthous ulcers, or the other oral lesions observed in pellagra, are not related to B_1. We think, however, that they are definitely related to B_2, or G. Pellagrous patients have at times oral lesions which are quite similar to the so-called aphthous ulcers, and these lesions respond dramatically to nicotinic acid given in adequate doses. Our experience with nicotinic acid shows that the oral lesions disappear within a few days after the drug has been started; however, the administration of B_1 has not modified these lesions in any respect. It is our feeling, therefore, that the mouth lesions observed in various nutritional deficiency states are related not to a deficiency of B_1, but to a deficiency of vitamin G.

DR. JAMES B. STONE, Richmond: In these fretful, hypertonic children, in whom there is no question of allergy or grossly improper feeding, we find that they are sometimes suffering from a vitamin B deficiency, and they are helped by the administration of some form of yeast extract or other concentrated preparations of vitamin B. In the case of older children, also, there is no question that some of them are suffering partly from vitamin B deficiency when they are not thriving.

There is one point I want to bring out which Dr. Hite has not mentioned but which I think he would have if there had been more time. That is, the method of supplying these vitamins. Due to the high-powered advertising that is going on there is a tendency on the part of a good many parents to go to the drug store and buy all sorts of vitamin tablets and extracts for children and pay little or no attention to the diet. If the diet is adequate it will usually supply the B vitamins. We do not know whether we can get an over-dosage or not from these concentrates. It is well to keep in mind that if the diet is properly balanced, containing a liberal quantity of fresh vegetables, citrus fruits, and lean meat and eggs, it will probably furnish an adequate supply of vitamin B. I mention this fact because so many lay people are inclined to over-emphasize the value of vitamin B in bottles. If they will get it from the grocery store instead of from the drug store they will be better off.

DR. HITE, in closing discussion: Time did not permit me to finish reading my paper or I would have covered the question which Dr. Porter has raised about the character or the factor of vitamin B involved in curing so-called aphthous ulcers.

We are definitely satisfied that it is not vitamin B_1 but vitamin B_2, or G. The results obtained by administration of vitamin B in cases who have aphthous ulcers must be analogous to the results obtained in the experimental work cited in the paper on gastric ulcers in rats which were cured by the use of auto-claved yeast. I have not used auto-claved yeast in the treatment of aphthous ulcers, but the whole yeast has been used.

I wish to thank the various gentlemen for discussing this paper.

MORTALITY FROM MALARIA IN THE UNITED STATES.*

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Under natural and uncontrolled conditions malaria in the past has been and now is one of the greatest scourges of humanity, especially in tropical regions. There have been and are times and places where it has caused a devastating mortality and a widespread morbidity productive of much physical incapacitation of populations and economic loss, even to the extent of rendering regions practically uninhabitable. Familiar historical instances of its ravages are afforded by the age-old deadliness of the Campagna surrounding the city of Rome, the staggering mortality at the early settlement of Jamestown in Virginia, and its frustration of the construction of the Panama Canal in the early days. From his vast experience with the disease Heiser says: "Among all tropical diseases malaria is supreme. * * * It is the

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most persistent, the most destructive, the most widespread, and the most difficult of them all to control."

Theoretically malaria can be controlled or eliminated by the eradication of the anopheline mosquitoes which convey the causative parasites to man. The possibilities of this method have been demonstrated, for instance, by its spectacular success in the Panama Canal Zone and in the northern and western sections and the cities of the United States. In many tropical and warm regions, however, great and baffling difficulties are encountered in the effective application of the method, owing to elusive differences in the breeding and living habits of the mosquito vectors in different localities, the great expense involved, and the insistent tendency of the disease to recur upon relaxation of the control activities.

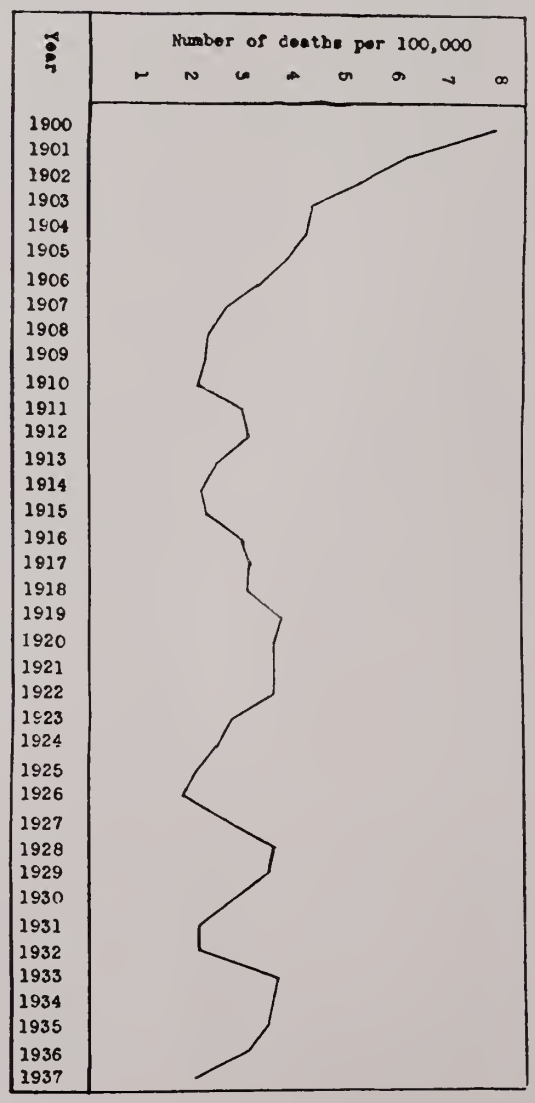
Malaria control measures were instituted in the United States soon after the year 1900, with immediate effect. As a basis for estimating the results obtained, we have the mortality statistics of the United States for 1900. These at that time covered only two-fifths of the population of the entire country, namely, ten entire northern states and about 150 scattered separate cities in other states. Although these statistics are incomplete, the data for the various cities are sufficiently representative of all parts of the country, including the southern sections, to afford some idea of the prevalence and distribution of malaria at that time and serve as a basis for comparison.

In 1900, as always, by far the greatest incidence of malaria was in the southern states; but the disease occurred also to a considerable extent in more or less scattered areas throughout the United States to the northernmost and westernmost parts. The mortality from malaria for the entire registration area in 1900 was 7.9 deaths per 100,000 of population. Five southern cities had extremely high rates, exceeding 100 per 100,000, namely, Wilmington — 262.2, Paducah—257.1, Jacksonville—239.2, Memphis—204.3, and Savannah—169.6. Many other southern cities had rates over 50 per 100,000. Many northern cities and states had considerable mortality from malaria, but very few had rates more than thirty-five.

Due to the introduction of control measures the mortality from malaria declined sharply from the rate of 7.9 per 100,000 in 1900 to 3.9 in 1905, less than one-half; since then it has fluctuated from year to year between 1.9 and 3.8. The annual malaria death rates in the registration area from 1900 to 1937 are exhibited in Table 1 and graphically in the chart.

TABLE 1. ANNUAL DEATH RATES FROM MALARIA IN THE REGISTRATION AREA OF THE UNITED STATES, PER 100,000 OF POPULATION, 1900-1937

Year	Death Rate	Year	Death Rate	Year	Death Rate
1900	7.9	1913	2.5	1926	1.9
1901	6.3	1914	2.2	1927	2.7
1902	5.4	1915	2.3	1928	3.6
1903	4.3	1916	3.0	1929	3.5
1904	4.2	1917	3.2	1930	2.9
1905	3.9	1918	3.1	1931	2.1
1906	3.4	1919	3.8	1932	2.1
1907	2.7	1920	3.6	1933	3.7
1908	2.4	1921	3.6	1934	3.6
1909	2.3	1922	3.6	1935	3.5
1910	2.2	1923	2.8	1936	3.1
1911	3.0	1924	2.5	1937	2.1
1912	3.1	1925	2.1		



Annual deaths from malaria in the United States registration area per 100,000 of population, 1900 - 1937.

It will be seen from the figures and the graph that malaria has fluctuated in cycles of increased incidence alternating with periods of recession. The causes of these periodical fluctuations, well known to malariologists as the "five-year cycles," are not clear. Such cycles of increased mortality occurred in 1911-1912, 1916-1922, 1927-1929, and 1933-1936.

In recent years malarial mortality has been almost entirely eliminated in both the rural and urban areas of the northern and western states, only a very few of which now ever have an annual death rate from the disease exceeding 0.4 per 100,000. Many of these states and large cities may now pass an entire year without a single death from malaria.

In the southern cities also malaria has been quite satisfactorily eliminated. In 1932, for example, the only southern cities over 100,000 in population that had a malaria death rate over two per 100,000 were Memphis (13.9), Houston (4.2), Tampa (3.8), and Dallas (2.2). In the southern states (excluding Texas), taken by themselves, the death rate from malaria in 1930 was 10.2 per 100,000 of population. Of the fourteen southern states, four in the northernmost tier, Kentucky, Missouri, North Carolina, and Virginia, have attained a stable statewide reduction of malaria deaths to below five per 100,000 of population. It is in the rural portions of the farther southern states that much the heaviest malarial incidence and mortality of the country are concentrated. In the years 1933-1934, of all the deaths from malaria in the United States 97 per cent occurred in the southern states; and 78.2 per cent in

TABLE 2. ANNUAL DEATH RATES FROM MALARIA, PER 100,000 OF POPULATION, IN THE SOUTHERN UNITED STATES

STATE	1920	1925	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
United States	3.6	2.1	3.6	3.5	2.9	2.1	2.1	3.7	3.6	3.5	3.1	2.1
Alabama		8.3	11.7	16.8	12.3	8.0	6.7	9.9	10.4	11.4	12.2	7.6
White		6.5	8.0	12.3	8.6	5.3	4.8	8.3				
Colored		11.4	18.1	24.8	18.9	12.8	10.1	12.7				
Arkansas			47.3	36.3	36.1	25.8	24.4	46.4	30.3	28.6	20.1	18.7
White			38.9	29.3	25.1	20.3	19.1	42.1				
Colored			70.9	56.4	67.7	41.7	39.7	58.8				
Florida	34.6	18.8	29.0	33.5	24.1	14.8	16.1	24.6	28.5	20.2	21.0	12.2
White	29.7	14.8	24.4	26.0	18.8	11.7	12.2	19.5				
Colored	44.4	27.4	39.7	51.3	36.8	22.3	25.6	37.0				
Georgia			18.8	23.5	15.1	10.5	10.8	12.6	13.6	12.6	20.0	7.8
White			12.6	18.1	10.2	6.6	7.1	10.3				
Colored			29.1	32.6	23.7	17.2	17.3	16.8				
Kentucky	2.5	1.9	2.2	1.7	2.1	1.8	1.3	3.0	2.2	2.5	1.8	1.3
Louisiana	32.3	13.5	12.0	9.8	8.3	7.0	7.3	19.9	17.1	17.0	11.7	8.4
White	28.3	8.9	9.7	8.6	6.6	5.8	6.8	16.7				
Colored	38.5	21.2	15.9	11.8	11.3	9.1	8.1	25.2				
Mississippi	37.9	23.8	28.0	20.4	17.2	12.4	19.4	39.4	34.3	26.4	18.0	15.4
White	22.1	13.2	19.5	15.6	11.6	9.2	12.9	30.7				
Colored	52.4	33.4	36.3	25.1	22.8	15.6	25.8	48.1				
Missouri	4.0	5.4	4.3	4.3	3.5	4.1	3.2	5.3	4.8	4.2	2.6	2.2
North Carolina	8.1	5.0	2.1	2.0	1.5	1.4	1.6	1.6	1.9	2.7	4.3	2.5
White	4.7	3.4	1.4	1.3	0.8	0.7	0.7	1.3				
Colored	16.1	8.8	3.6	3.9	3.0	3.1	4.0	2.2				
Oklahoma			7.5	6.8	5.9	4.2	4.5	5.4	5.6	5.5	3.7	3.6
White			6.4	6.0	4.9	3.4	3.9	4.8				
Colored			15.7	13.8	14.2	10.5	8.6	10.4				
South Carolina	28.9	10.1	22.1	22.0	21.0	14.5	13.4	14.0	19.4	23.4	23.4	14.1
White	11.8	3.5	9.8	10.7	8.0	5.8	6.4	6.2				
Colored	45.3	16.9	36.2	35.1	36.6	25.0	22.0	23.5				
Tennessee	7.8	6.3	8.3	6.9	5.5	5.5	5.0	10.3	9.5	7.8	5.4	3.6
White	5.5	4.5	6.5	5.2	4.0	3.9	3.8	8.2				
Colored	17.4	14.4	16.3	14.5	12.3	12.3	10.2	19.9				
Texas								7.1	8.2	10.6	8.1	5.8
White								5.8				
Colored								10.6				
Virginia	2.2	1.8	0.5	0.7	0.7	0.5	0.2	0.4	0.4	0.6	0.6	0.4

the rural districts. This shows the distribution of the disease. In the past fifteen or twenty years, aside from the usual cyclic fluctuations, there has been little or no substantial change or improvement in the numbers or rates of the deaths from malaria in these rural regions. This constitutes a very serious public-health situation and problem.

Malaria is not evenly distributed in individual infected states, but has concentrations in particular localities therein, with intervening areas freer of the disease. An apparently low general average malaria mortality rate for a state may create a feeling of deceptive security, since it does not exclude the possibility of an undesirable and a remediable heavy concentration of the disease in a limited section. An annual death rate from malaria of over fifty per 100,000 of population has been regarded as very serious; of fifty to ten as moderate; under ten as inconsiderable. This may apply to the southern states; but any northern or western state with an annual rate over 0.4 would almost certainly contain some notable local concentration of infection requiring attention.

Following the censuses of 1920 and 1930, studies were made by Maxcy and by Dauer and Faust of the distribution of malaria in the south by counties, according to their respective malarial death rates. There was moderate rural malaria mortality throughout the entire Atlantic and Gulf low-lying and fluvial coastal plain regions, along the Mississippi Valley down from southeastern Missouri, and in eastern Texas and Oklahoma. The affected areas were limited in the east by the mountainous and upland regions, and in the west by the arid plains of western Texas and Oklahoma. There were two separate regions of high malaria mortality: one eastern, comprising north-central Florida, across southern Georgia, and up the coast into South Carolina; and the other in the Mississippi Valley from southeastern Missouri to northern Louisiana, with a westward extension into southeastern Oklahoma. The conditions and locations were much the same in both 1920 and 1930, with those of the latter period somewhat better in the western regions and worse in the eastern.

The detailed statistics for the southern United States of malaria death rates 1920-1937 are presented in Table 2, and for numbers of deaths from the disease 1930-1937 in Table 3.

The total annual number of deaths from malaria in the United States (see Table 3) has in recent years ranged between three and five thousand. This approximates the numbers of annual deaths from typhoid fever and diphtheria, two other preventable diseases.

TABLE 3. TOTAL NUMBERS OF DEATHS FROM MALARIA IN THE SOUTHERN UNITED STATES, 1930-1937

STATE	1930	1931	1932	1933	1934	1935	1936	1937
Alabama	326	213	179	265	292	327	345	219
Arkansas	670	481	456	869	599	564	411	384
Florida	356	223	246	382	453	331	349	204
Georgia	440	305	315	367	410	387	606	242
Kentucky	54	48	35	79	63	74	52	38
Louisiana	176	149	156	428	363	360	257	180
Mississippi	347	252	395	807	688	518	352	312
Missouri	129	149	116	197	186	164	104	89
North Carolina	47	46	53	51	66	94	155	87
Oklahoma	143	103	109	134	139	102	92	92
South Carolina	366	252	234	244	354	378	423	264
Tennessee	144	144	132	275	265	222	155	105
Texas				429	497	644	497	361
Virginia	16	13	6	10	10	14	17	10
Total for Southern States				4537	4385	4179	3815	2587
All other states	199	157	136	141	135			142
Total for United States				4678	4520	4435	3943	2729
Percentage of malaria deaths of entire country occurring in Southern States				97.0	97.0			94.8

The numbers of deaths in the individual states for 1935-1936 are from the state reports; the other figures are from the United States Census reports.

In the times and places of its heaviest incidence the deaths from malaria in the southern states have ranged as high as one death in every twenty or thirty deaths from all causes; but usually they are less than 2 or 1 per cent. For the United States as a whole, they are about one-third of 1 per cent; for the southern states by themselves about 1 per cent. Originally the death rates from malaria in the cities probably approached or possibly exceeded those in the corresponding rural districts. Latterly, however, in the south the rural rates and actual numbers of deaths from malaria have ranged about seven times those for the cities; in the north, the disease has been eliminated in the rural as well as in the urban districts. The factors productive of malaria are much the same in the cities as in the country, the present differences in the south being due to more effective and extensive antimalarial operations having been carried out in the cities.

Occupation is not in itself alone a specific factor

TABLE 4. TOTAL NUMBERS OF DEATHS FROM MALARIA IN THE UNITED STATES, 1933-1935

	1933	1934	1935
United States, total	4,678	4,520	4,435
Cities of 10,000 or more	627	601	
Cities of 2,500 to 10,000	354	420	
Rural	3,697	3,499	
Percentage of rural deaths	79.0	77.4	
Male	2,521	2,317	2,318
Female	2,157	2,203	2,117
White	2,675	2,493	2,575
Male	1,548	1,325	1,432
Female	1,127	1,168	1,143
Negroes	1,936	1,921	1,848
Male	936	945	878
Female	1,000	976	970
Other Races	67	106	12

in the incidence of malaria. It is only as the occupation involves exposure to the bites of the infective mosquitoes that there is any relation. Thus, farmers and laborers in heavily infected rural regions would be much exposed to the danger of contracting malaria. Economic and environmental conditions are very important factors, since those of low social grade, who from poverty, ignorance, or indifference cannot or do not, in their mode of living and working, take proper precautions against the mosquito vectors, are exceedingly apt to acquire the disease.

The death rate from malaria is much greater in the colored population than in the white. In the individual southern states, in which the conditions are comparable, the colored rates latterly have ranged from one and one-half times to three or four times those of the white. The differences in mortality are probably more the result of environmental and economic conditions than of racial factors.

The mortality of the two sexes from malaria is about equal; however, among negroes it seems to be slightly greater in the females. The rates per 100,000 of population for 1930 were:

	MALE	FEMALE
Total	2.8	2.9
White	1.7	1.5
Negro	14.8	16.3

Age has a very definite relation to mortality from malaria. The rates for 1930 and 1935 are presented in Table 5. These figures are somewhat diluted and lowered, from the fact that the population base is that for the entire country, while the deaths are mainly concentrated in the limited southern sections; however, they sufficiently represent the relative differences for age. The mortality is higher under five

TABLE 5. DEATH RATES FROM MALARIA BY AGE IN THE UNITED STATES, PER 100,000 OF AGE POPULATION, 1930 AND 1935

AGE AT DEATH, YEARS	1930	1935
Under 5	6.4	8.2
5-9	2.1	2.7
10-14	1.4	1.8
15-19	1.1	1.9
20-24	2.0	2.3
25-29	1.5	2.1
30-34	1.7	2.5
35-44	1.7	2.4
45-54	3.1	3.3
55-64	3.9	5.0
65-74	5.7	7.5
Over 74	13.6	15.4

years of age; lowest from ten to nineteen years; rather uniform from twenty to forty-four years; then increasing, to much the highest over sixty-five and seventy-five years of age.

The mortality from malaria naturally varies much with the season of the year and the corresponding abundance of the mosquitoes, as illustrated by Table 6, giving the deaths by months in the United States

TABLE 6. PERCENTAGES OF DEATHS FROM MALARIA BY MONTHS IN THE UNITED STATES, 1933-1934 (COMBINED)

MONTH	PERCENTAGE	MONTH	PERCENTAGE
January	2.7	August	15.2
February	1.6	September	17.7
March	2.1	October	18.7
April	2.8	November	11.5
May	3.5	December	5.1
June	7.5		
July	11:6		100.0

for the two years 1933 and 1934. The deaths are lowest about February, increase rapidly during the summer months, and reach a maximum in September or October.

The eradication of malaria from the Panama Canal Zone, formerly one of the world's worst pestholes, was a maximum achievement of sanitary engineering. In the year 1906, out of every thousand Canal Zone employees there were 821 clinical cases of illness from malaria, and 8.78 deaths (878 per 100,000). These rates gradually—not immediately—diminished, so that since 1915 the cases have ranged from only eleven to thirty-one per thousand per year, and in the fifteen years from 1921 to 1935 there were only six deaths in all from malaria.

In Puerto Rico the mortality from malaria is extremely heavy, in 1932-1934 the deaths having averaged 171 per 100,000 of population, and the pro-

portion of the total deaths due to malaria having been 8 per cent.

In Hawaii there is no mortality from malaria.

Malaria is naturally a cause of concern in the issuance of life insurance in the regions of its heavy incidence. Monitory lists of highly malarious southern counties are maintained by insurance companies in which this factor is given special consideration. The counties of high malaria mortality are, however, constantly varying from year to year, and regions in their vicinity are only slightly less undesirable; so that no sharp delimitation by definite counties is permanently valid. Most of the present heavily infected malarious counties are of low economic grade, usually with a proportion of negro population much higher than the average for their state, in some instances exceeding 70 and even 80 per cent. Such regions are too poor to afford a probable, profitable, or attractive field for insurance exploitation. Most of the malarious counties have a total death rate from all causes among the white residents of their rural portions at the worst not very unfavorable in comparison with the corresponding rates for their state or the entire country. The conditions are far from prohibitive for well selected insurance among the more prosperous and responsible white rural residents, who can be depended on to take proper precautions and keep their houses well screened and their premises properly policed against the propagation and access of the mosquitoes.

From a health and economic standpoint the morbidity caused by malaria, as well as its mortality, is of great public consequence. For every death from malaria there are a large number of non-fatal cases of illness from the disease, the ratio being usually estimated at one death for every 200 or more cases. This was about the ratio in the Panama Canal Zone, among whose employees for a period of thirty years there were a probably reliable number of 100,961 cases of sickness and 683 deaths from malaria,—a case fatality rate of 0.68 per cent. At the rate of 200 cases for every death there would occur each year in the United States more than 800,000 cases of illness from malaria. While many of the cases are brief and mild, in the aggregate they contribute vastly to morbidity and temporarily incapacitating illness in the many affected localities; besides frequently becoming chronic and causing lasting debilitation and invalidism or laying a foundation for the development of other complicating diseases.

In the north malaria was formerly very conspicuous as a cause of illness. The public was very malaria-conscious, and to malaria, or "malarial poisoning" as the term was, was attributed the causation of all sorts of illnesses and ailments. Malaria was rather more looked upon as a general malign influence than as a specific disease; and there was much carelessness of diagnosis and looseness of language concerning it.

Compulsory reporting to the health authorities of cases of sickness from malaria is in force in a number of southern states. Such reports are very incomplete, since aside from the negligence of physicians large numbers of the patients do not call any doctor but treat themselves with quinine upon the onset of chills. Such case reports are useful, however, in helping the health officials to keep track of the intensity and location of prevailing outbreaks.

Another method extensively employed for reliable and ready determination of the prevalence and concentration of malaria in particular localities consists in making blood examinations of the inhabitants of the communities or local population groups, such as school children, to determine the proportion of individuals who knowingly or unknowingly harbor the parasites in their blood. A summary by Williams of 129,000 blood slides examined in 1934 showed an average index or ratio of infection of the populations represented of 5.8 per cent; with a distribution of about 60 per cent benign tertian and 40 per cent estivo-autumnal types of the parasites. In particular localities at times of heavy outbreaks much higher proportions of the populations are found to be infected with malaria, frequently over 20 or 30 per cent, and even as high as 50 to 65 per cent. By means of these malarial surveys points or foci of maximum concentration of the disease can be located, and given primary attention in the antimalarial operations.

Surveying the situation as a whole, there has since 1900 been a decrease of considerably more than one-half in the general malaria mortality of the United States, representing a saving of five to six thousand lives annually and untold economic gain. This reduction has been accomplished (1) in the northern and western states, in both cities and rural areas, where the disease has approached the vanishing point and has become as rare as once it was common, almost a forgotten disease; and (2) in the southern cities, where eradication is more difficult. In rural

sections of the south malaria is still seriously prevalent. Since 1933 very extensive, energetic, and intelligent antimalarial work has been actively prosecuted throughout the south, with the aid of generous Federal emergency relief funds. Laborers have been employed by tens of thousands, thousands of miles of ditches have been dug, hundreds of thousands of acres of land have been drained, and millions of inhabitants have been brought within the influence of the mosquito policing. The prospects of future results from this active attack on the disease should be very hopeful.

The control of malaria through the eradication of the mosquito vectors is expensive and difficult, sometimes baffling. The reduction of the disease in the United States and the Panama Canal Zone, however, shows the possibilities attainable. The results constitute one of the major large-scale achievements of medical and sanitary science, of inestimable benefit to mankind.

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LYMPHEDEMA OF EXTREMITIES.*

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The extremities are possessed of a three-fold vascular system, arterial, venous, and lymphatic. Embryologically, the lymphatic system is an outgrowth of the venous, and functionally, the lymphatics act as accessory vascular channels, for the return of tissue fluid, and particularly its protein to the large veins of the neck, and thus to the right side of the heart.

The need for this accessory system arises from the loss of fluid, and of blood protein from the blood capillaries into the tissue spaces. The lymphatic system normally plays an insignificant part in the water balance. However, in pathological processes it becomes all important.

ANATOMY

The lymphatic capillaries and delicate lymphatic vessels of the extremities are closed vessels whose walls, lined only with endothelium are so thin and transparent that the fluid they contain can readily be seen through them. The vessels have a beaded appearance due to many valves and corresponding constrictions throughout their length. In general, there is more lymphatic than blood capillary surface. Lymph capillaries are especially abundant in the skin, forming a rich plexus, freely anastomosing over broad cutaneous surfaces, and emptying into somewhat deeper collecting vessels. The collecting vessels are in two systems, one subcutaneous and one deep. Although an offspring of the veins and in many other respects similar to veins, the two sets of lymphatics, superficial and deep, are not known to have well developed connecting branches.

From the rich plexuses of the skin and less abundant plexuses of the muscles, large lymphatic collecting vessels carry lymph to the proximal nodes in the pelvis and axilla as the case may be, and thence by the thoracic trunk and jugular trunks to the veins of the neck. Lymph flow is normally centripedal, and is maintained by posture and muscular activity. The circulation of lymph varies greatly but is normally very rapid. Many valves normally prevent the downward flow of lymph, just as in the venous system. And like veins, the lymphatics may dilate, become varicose, establish collateral circulation, become inflamed, thrombosed, or become obstructed. The convergence of all extremity lymphatics into the same trunks in the pelvis or axilla enables obstruction to occur readily at these sites.

When the lymphatics fail in their function of absorbing excess fluid protein from the tissue spaces, lymphedema results. Normal tissue fluid protein content is about 1 per cent, whereas in lymphedema the protein content may be as high as three or 4 per cent[1].

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The rich protein content of the tissue fluid of lymphedema stimulates a rapid growth of fibroblastic tissue and renders the extremity extremely susceptible to streptococcal lymphangitis. The resultant fibrosis and recurrent attacks of infection establish the characteristic vicious cycle of these cases—lymph stasis, tissue fibrosis, lymphangitis, with increased lymphatic obstruction from thrombosis, and aggravated lymph stasis.

The composition of lymph is similar to that of blood capillaries. It contains protein, fibrinogen, prothrombin, chlorides, calcium, nitrogen, urea creatinine, sugar, amino acids, phosphorus, red and white corpuscles.

The blood capillaries are the essential mechanism for determining the water content of the tissues. Water passes out of the blood capillaries as a result of capillary pressure, and passes in as a result of the osmotic pressure of the blood proteins. (Stalling). This balance of forces between the capillary blood pressure and the osmotic pressure of the blood plasma proteins maintains normally a minimum amount of fluid in the tissue spaces.

From the foregoing, it is apparent that any factors that elevate capillary pressure, lower colloid osmotic pressure, damage capillary walls, dilate or obstruct the lymphatics, will favor edema. The following table is modified from Landis:

FACTORS IN THE PATHOGENESIS OF EDEMA—LANDIS

FACTORS FAVORING EDEMA FORMATION	CLINICAL EXAMPLES
A. Primary	
1. Elevated capillary pressure	1. (a) Varicose veins, external pressure on veins (b) Thrombophlebitis, superficial (c) Thrombophlebitis, deep (Phlegmasia Alba Dolens) (d) Cardiac edema with venous congestion
2. Lowered colloid osmotic pressure	2. (a) Nutritional (hypoprotein) edema (b) Nephritic edema (c) Cardiac edema, late stages with malnutrition
3. Damage to capillary wall	3. (a) Inflammatory edema (b) Nephritic edema (c) Cardiac edema (chronic anoxemia) (d) Peripheral arteriosclerosis or occlusion (anoxemia)
4. Lymphatic obstruction	4. (a) Lymphedema due to malignant occlusion, surgical removal of lymph nodes, lymphangitis with lymphatic thrombosis, etc. (b) Lymphedema of Phlegmasia Alba Dolens
5. Lymphangiectasis	5. (a) Congenital lymphedema (b) Valvular incompetence following lymphangitis (c) Heat of tropics
B. Contributory	
6. Low tissue pressure	6. (a) Edema of periorbital tissues and genitalia
7. High tissue fluid colloid pressure	7. (a) Elephantiasis nostros
8. High salt intake	8. (a) Increases edema if water is available
9. High fluid intake	9. (a) Increases edema if salt is available
10. Warm environment	10. (a) Heat edema (b) Increases all types of edema
11. Disturbed innervation	11. (a) Tropho-edema as after subarachnoid alcohol block (b) Unilateral edema in hemiplegia (c) Angioneurotic edema
12. Endocrine imbalance	12. (a) Myxedema (b) Menstrual edema

Clinical edema is usually not the result of one but of several of these factors. Thus, in cardiac edema there are elevated capillary pressure from venous stasis, lowered osmotic plasma pressure from malnutrition, and damage to the capillary wall from anoxemia. Likewise, in the edema of superficial thrombophlebitis, there are elevated capillary pressure from venous thrombosis, damage to capillary walls from inflammation and thrombosis, and lymphatic obstruction from perivenous inflammation.

The principal clinical varieties of edema of the extremities, exclusive of lymphedema, are as follows:

Cardiac edema
Nephritic edema
Nephrotic edema
Cirrhosis of liver
Edema from thrombophlebitis, varicose veins, and external pressure on veins
Inflammatory edema
Nutritional edema

Edema of peripheral arteriosclerosis with arterial occlusion
Tropho-edema
Myxedema
Menstrual edema
Angioneurotic edema

Differential Diagnosis of Lymphedema from Other Types of Edema

The brawny indurated skin and the hypertrophied limb of advanced lymphedema are characteristic and rarely present a diagnostic problem. Early or slight lymphedema, especially when bilateral, may be with difficulty differentiated from the edema of the systemic or local diseases just enumerated. A careful history and physical examination will usually clarify the situation. Heart and kidney disease are diagnosed by the usual means. Nutritional and nephrotic edema require total plasma protein, and albumin-globulin ratio estimations; myxedema presents a characteristic picture confirmed by the basal metabolic determination. Menstrual edema is cyclical and accompanied by a premenstrual reduction in the urinary output; angioneurotic edema is intermittent in occurrence and patchy in distribution and the edema does not diminish when the extremity is elevated. Tropho-edema is readily overlooked unless a careful neurological examination is made.

Not all extremity swelling is edema. Lipodystrophy is usually associated with generalized obesity or obesity about the pelvis. The swelling is invariably bilateral, pitting on pressure is much less evident than in lymphedema, and there is less marked diminution in size following elevation of the extremities. Sarcoma, lipomas of the soft parts, neoplasms of the bone may cause unilateral swelling, which, however, is usually more localized than lymphedema, and which casts a characteristic shadow by X-ray.

Lymphedema

Lymph is fluid obtained from lymph vessels in contradistinction to the tissue fluid of the intercellular spaces and the plasma of the blood. Lymphedema is a swelling of the soft tissues which is the result of increased lymph within the dilated or obstructed lymphatics or endothelial lined lymph spaces. There is an associated increase in tissue fluid.

Lymphedema may be produced by obstruction of the lymphatics centrally, destruction by thrombosis or strangulating fibrosis locally, or by congenital lymphangiectasis. The mechanism of production of a given case of lymphedema is often obscure and for the present, classification of lymphedema is on a purely clinical basis. The following table is Allen's:

Classification of 300 Cases of Lymphedema—Allen[2]

A. Non-Inflammatory	
I. Primary	
Praecox	93
Congenital	
1. Simple	12
2. Familial (Milroy's disease)	0
II. Secondary	
Malignant	32
Surgical removal of lymph nodes	61
Pressure	1
Roentgen and radium therapy	3
B. Inflammatory	
I. Primary (single or recurrent acute and chronic)	+1
II. Secondary (single or recurrent acute and chronic)	
Venous stasis	13
Trichophytosis	5
Systemic disease	5
Local tissue injury or inflammation	3+
Filariasis	0

Most cases of lymphedema may be classified without difficulty according to this tabulation. "Milk Leg" should probably be given a place as a secondary inflammatory lymphedema, as is discussed later in this paper. It is to be noted that in Allen's series, lymphedema praecox accounted for the greatest percentage of non-inflammatory primary lymphedemas, and malignant occlusion or surgical removal of

My Own Much Smaller Series is Tabulated as Follows:

A. Non-Inflammatory	
I. Primary	
Praecox	6
Congenital	
1. Simple	2
2. Familial (Milroy's disease)	0
II. Secondary	
Malignant occlusion	+
Surgical removal of lymph nodes	2
Pressure	0
Roentgen and radium therapy	0
B. Inflammatory	
I. Primary (single or recurrent acute and chronic)	27
II. Secondary (single or recurrent acute and chronic)	
Venous stasis	14
Trichophytosis	+
Systemic disease	1
Local tissue injury or inflammation	6
Filariasis	0
	—
	66

lymphnodes accounted for the majority of non-inflammatory lymphedemas of secondary nature. In inflammatory lymphedema, the cause is so often obscure that the majority of cases have to be classified as primary.

The non-inflammatory lymphedemas have certain features in common. The edema is ordinarily symmetrical, beginning at the foot or hand and extending partly or entirely to the groin or axilla. The skin of the part is smooth and not discolored. There are no pigmentations, eczema or ulceration. There is pitting readily on pressure. The edema is worse during long periods of activity, and practically disappears on elevation of the extremity. As the swelling becomes more marked and its duration increases, the smooth skin becomes roughened, and the hitherto soft edema becomes resistant to pressure. Elevation now causes a reduction but not a disappearance of the swelling. Actual tissue hypertrophy begins to develop and the limb becomes grossly disfigured and uncomfortable. Attacks of acute lymphangitis and cellulitis, typical of all cases of advanced lymphedema, occur but with far less frequency than in the inflammatory lymphedemas.

Lymphedema Praecox

This is an original term of Allen's and is used to denote early development of primary non-inflammatory lymphedema. In the majority of cases the onset is between ten and twenty-four years of age, while in many instances it begins at puberty. The condition affects predominantly females. One or both lower extremities may be affected. The edema ordinarily progresses up the leg slowly and the entire limb becomes edematous over a period of months or years. The edema is worse during menstruation and in warm weather ,and when the patient is on her feet a long while. Elevation of the extremity produces its temporary disappearance. The young girls who become afflicted with lymphedema praecox are often greatly distressed by the appearance of their swollen extremity and constantly seek advice, which unfortunately is rarely of benefit.

I have seen to my knowledge six cases of this type, two before I was familiar with Allen's description and four since. The last patient was a Miss C., age twenty-two, who could only state that several months previously her right leg began to swell about the ankle and this condition gradually progressed up to the thigh. The entire history was that of conversion of a normal limb into a swollen one; nothing else was noteworthy although the patient did menstruate irregularly. The edema was greater during menstruation.

The cause of lymphedema praecox is unknown. Presumably the extremity lymphatics are dilated. Whether or not this dilatation is secondary to obstruction of the main lymphatic channels in or above the pelvis is unknown. Homans, Drinker and Field report a case in which, at exploration, greatly enlarged lymph vessels were found in the pelvis, suggesting obstruction proximally. The most likely error is to mistake lymphedema praecox for the chronic edema that often follows milk leg. The characteristic age of onset and the absence of a history of acute deep femoral thrombophlebitis in the former are the distinguishing features.

Congenital Edema

Lymphedematous swelling present at birth is called congenital lymphedema and, when the condition is familial, it is known as Milroy's disease. The clinical characteristics of congenital lymphedema are

Fig. 1.—Lipodystrophy. There are a number of medium-sized varicosities, but the leg size is due to lipodystrophy.

the presence at birth of a diffuse swelling involving part or all of a single extremity, the disproportionate increase in size of the involved extremity as constrasted with the uninvolved companion member; the absence of pain, ulcers, and rarity of recurrent at-

tacks of infection, and the otherwise good health of the patients. The swelling is firm but pits on pressure, and it is reduced markedly in size when the extremity is elevated. The pathology of congenital lymphedema is presumed to be a congenital malformation in which widely dilated lymph spaces and connective tissue replace the space ordinarily taken up by subcutaneous tissue—a lymphangiectasis and tissue fibrosis. The microscopic picture is entirely characteristic. Congenital lymphedema has to be differentiated from lipodystrophy and congenital arteriovenous fistulas. In the latter, there is an increase in length as well as girth of the extremity, the temperature of the skin is higher than that of the companion member, the superficial veins are dilated and contain blood which resembles arterial blood as to oxygen content.

Secondary Non-Inflammatory Lymphedema

In addition to the primary lymphedemas, praecox and congenital, lymphedema of a non-inflammatory type may occur secondarily to known causes of lymphatic obstruction—malignant occlusion, surgical removal of lymph nodes, pressure, roentgen and radium therapy. As malignant occlusion by metastasis of malignant disease of the breast, uterine cervix, uterus, vulva, prostate gland, bladder, testes accounts for a large percentage of secondary non-inflammatory lymphedemas, the possibility of malignancy must be ever borne in mind.

Inflammatory Lymphedema

All cases of inflammatory lymphedema have one feature in common, single or recurrent attacks of acute cellulitis and lymphangitis—attacks of lymphangitis streptogenes. The contrast between lymphedema of inflammatory origin and the congenital or praecox or other types of non-inflammatory lymphedemas is striking. In inflammatory lymphedema, progression is by a series of erysipelas-like attacks which are sudden in onset, and striking in severity; in non-inflammatory lymphedema the history is one of slowly progressive edema. Only occasionally does inflammatory lymphedema develop without these typical attacks of lymphangitis and cellulitis, and in these instances there has probably existed a subclinical infection following an unnoticed injury or infection. The extremity affected with inflammatory lymphedema is often warmer than its companion member; reddish discolored areas are present in the skin; eczema, ulceration are common. In non-inflammatory lymphedema, the extremity lymphatics are dilated, due to congenital lymphangiectasis or obstruction proximally; in inflammatory lymphedema the extremity lymphatics are thrombosed or destroyed locally by attacks of lymphangitis.

When inflammatory lymphedema exists without apparent cause, it is classified as primary inflammatory lymphedema. Probably infection has entered through unnoticed portals of entry. McMaster and Hudack, working with intracutaneous vital dye injections, have demonstrated that foreign matter capable of initiating infection may enter open lymphatics, following a miscroscopic abrasion of the most superficial strata of skin.[3]

Fig. 2.—Primary inflammatory lymphedema. An acute attack of cellulitis and lymphangitis subsided under sulfanilamide therapy, but the lymphedema persisted.

Most cases of inflammatory lymphedema are secondary to detectable cause, such as contusions, laceration, surgical incisions, vesicles, abscesses, bubo, furuncles, burns, fractures, penetrating wounds, dog bites. In each instance, the injury or infection has initiated one or more attacks of acute cellulitis and lymphangitis characteristic of this type of lymphedema. Single attacks each leave the extremity more edematous, with more lymph stasis, more tendency to fibrosis, greater susceptibility to further attacks of lymphangitis.

A special type of inflammatory lymphedema oc-

Fig. 3.—Traumatic lymphedema. Lymphedema developed subsequent to striking the leg violently against a chair.

curs in connection with trichophytosis of the toes. Attacks of acute erysipelas-like inflammation of the skin occur, resembling the acute attacks of lymphangitis and cellulitis typical of inflammatory lymphedema. On the feet or hands or between the toes or

Fig. 4.—Acute cellulitis and lymphangitis complicating epidermophytosis of the toes. Sulfanilamide caused a rapid subsidence of acute symptoms.

fingers are usually to be seen open lesions of trichophytosis. Considerable disagreement exists as to whether the attacks of lymphangitis and cellulitis in these cases are due to the trichophytes themselves, are secondary to invasion of the streptococci, or are allergic manifestation of the trichophytes or of streptococci. Sulzberger and others claim that the attacks are allergic manifestations of the trichophytes and claim to prevent the attacks by desensitization to the fungus organism.[4] Most of my cases secondary to epidermophytosis of the toes have appeared to be definitely streptococcal, as indicated by their almost specific response to streptococcus antisera. Dr. Whitehill, my associate, is however, at present desensitizing a patient who has been having recurrent attacks of lymphangitis and cellulitis for over fifteen years, who has chronic epidermophytosis and who gives a positive intra-dermal test to trichophyton extract 1:30 dilution.

Other causes of inflammatory lymphedema are venous stasis from varicose veins, pregnancy, influenza, typhoid fever, pneumonia, malaria. In most instances, lymphedema in such cases is due to associated thrombophlebitis. Filarial infestation also causes inflammatory lymphedema and as filaria is known to exist in the South, we have to be on the watch for it in this locality. The diagnosis depends on finding the filarial organism in blood drawn from the patient at night during an attack of acute lymphangitis and cellulitis.

ELEPHANTIASIS

Lymphedema, non-inflammatory or inflammatory, that progresses to an advanced stage is called elephantiasis. In a small proportion of advanced non-inflammatory lymphedema and in most instances of inflammatory lymphedemas recurrent erysipelas-like attacks of acute lymphangitis and cellulitis occur which greatly increase tissue fibrosis, induration, and skin hypertrophy, a clinical condition called "elephantiasis nostras streptogenes". In non-inflammatory lymphedema, the lymphatic stasis *per se* with its consequent fibroblastic proliferation is sufficient to produce elephantiasis in the absence of infection; infection simply aggravates the process. In elephantiasis from inflammatory lymphedema, enlargement cannot develop without the infectious attacks. In the last stages of non-inflammatory elephantiasis the limb is grossly large and deformed; in inflammatory elephantiasis often contracted, particularly about the ankle.

Elephantiasis nostras streptogenes is then a chronic inflammatory fibromatosis of the dermal and hyperdermal tissues, either preceded or accompanied by lymphatic stasis, and repeated attacks of streptococcus lymphangitis.[5] There is ample though not positive evidence of the role of the streptococci in these cases. Clinically the typical acute attacks of lymphangitis and cellulitis resemble erysipelas. Coincident with the development of a small reddened area on the extremity, the patient becomes generally sick with chills and high fever. The reddened area spreads until a considerable portion of the extremity is swollen and tender and the skin of the involved part raised, red and hot. The proximal lymph nodes swell and become tender. High fever, severe systemic reaction persist for several days after which the condition usually subsides spontaneously, never spreading beyond the limb and never suppurating. After all clinical signs of acute inflammation have disappeared, swelling is present in a greater degree than before the attack, and the already disordered lymphatics are even more extensively thrombosed and obstructed by fibrosis. The swollen leg is indurated, its cutaneous surface discolored and pig-skin in appearance. Ulceration, difficult to heal, occurs from the slightest injury.

Microorganisms have not been found with uniformity in the tissue or edema fluid secured during the erysipeloid attacks of chills and fever of elephantiasis streptogenes, and blood cultures are invariably negative. However, in experimental lymphedema in the dog, the streptococcus can be repeatedly isolated early in the acute attack.[6] Spontaneous attacks of streptococcus infection occur in experimental elephantiasis and attacks can be produced at will by injecting comparatively few organisms into the region of lymphedema. These facts are especially significant in view of the fact that it is practically impossible to infect non-edematous dogs by the subcutaneous injection of streptococci. Streptococcus antiserum and recently sulfanilamide have been reported as aborting attacks in humans.

The microscopic picture of elephantiasis is typical. There is marked hypertrophy of the skin and subcutaneous tissue with an increase in the collogen bundles. The deep fascia is very thickened. The vessel walls are hypertrophied and show perivascular round cell infiltration. In the lymph soaked tissue, almost no evidence of lymphatic vessels exists. Interesting from the standpoint of treatment, all of the pathology is in, or superficial to, the deep fascia. The replacement fibrosis of the subcutaneous tissue presents a characteristic trabeculated appearance in the soft tissue roentgenograms which are considered diagnostic by Reichert.[7]

Fig. 5.—Elephantiasis subsequent to iliac thrombophlebitis (Milk Leg). Note contraction above the ankle.

The experimental reproduction of elephantiasis

Fig. 6.—Elephantiasis.

has been recently accomplished by Drinker by repeated intralymphatic injections of a suspension of firmly divided crystalline silica in 2.5 per cent quinine hydrochloride.[8] The lymphatics are first made visible by injecting a suitable dye between the toes. The lymphatic vessels are needled with the aid of a dissecting loupe and cannulated with a fine quartz needle. Injections are made into the popliteal lymph node and deep lymphatics of the thigh, and in the superficial lymphatics of the lower leg. The successive deposition of silica and the sclerosing effect of quinine bring about a sterile and painless destruction of lymphatics and lymphedema and elephantiasis result. Attacks of chills, fever, cutaneous erysipeloid inflammation, similar to those in human elephantiasis, occur spontaneously. When thoratrast is injected into the lymph choked tissue of experimental elephantiasis, the suspension drifts into widely distributed tissue spaces close to the surface, a valveless series of lymph pools.

Differential Diagnosis of Extremity Swelling

The factors in the pathogenesis of edema have been mentioned, the causes of extremity swelling not of lymphatic origin have been given, the various clinical varieties of lymphedema have been described, and an advanced form of lymphedema, elephantiasis, discussed. Although the subject seems somewhat confusing, as a matter of fact it is not difficult to classify a given case of extremity swelling. The usual history and general physical examination should diagnose the two chief systemic causes of non-lymphedematous swelling, cardiac or nephritic disease. Such edema, dropsy edema, exists throughout all the structures of the body, especially in the subcutaneous tissue and muscle, and does not particularly involve the skin. The skin is tense, not thickened, smooth, pits readily on pressure. True lymphedema involves the skin and subcutaneous tissues of the extremity only and not the deeper tissue. It produces a brawny leathery condition of the skin which pits much less definitely than cardiovascular edema. In lymphedema, the edema fluid is rich in protein content, 2 to 4 per cent, while in dropsy, the protein content approaches normal. Of course, the rarer systemic conditions, such as nutritional edema or other conditions listed previously must be borne in mind, but, in general, with cardio-renal disease excluded and no local condition such as thrombophlebitis present, one is dealing with lymphedema, and when the swelling has existed since birth or developed spontaneously in early adult life in the female, we have non-inflammatory lymphedema of congenital or praecox type. The non-inflammatory secondary lymphedema will not be missed if malignancy is kept in mind or some other less serious detectable cause for non-inflammatory obstruction of the proximal lymphatics. The extremity in inflammatory lymphedema has a characteristic discolored and indurated appearance. In the history, there is the one distinguishing feature of all cases of inflammatory lymphedema—single or recurrent attacks of acute lymphangitis and cellulitis.

The lymphedema problem is at present stimulating considerable experimental methods for research. Principal among these methods are the intralymphatic injections of silicon and of quinine in the experimental production of elephantiasis as described by Drinker; the X-ray visualization of lymphatics after the injection of opaque substances such as mercury or thoratrast as exemplified by the work of Zolotukhin[9] in Russia, and Menville[10] in this country, and intracutaneous injection of vital dyes after the method of McMaster of the Rockefeller Institute.

Space does not permit a lengthy description of this latter method but it bids fair to being a practical clinical method of easily studying at least the cutaneous lymphatics. I recently visited Dr. McMaster and he informed me that the New York Post Graduate and the Medical Center are now using the method. It consists of the intradermal injection of an 11 per cent isotonic Locke solution of a highly diffusible dye, patent blue V. With the aid of a binocular microscope, the dye is seen to enter the rich cutaneous network of lymphatics and within a few minutes to appear as colored streamers in the deep lymphatic channels of the skin. The rapidity with which the dye is taken up by the lymphatics and the length and size of the streamers are taken as measures of the lymphatic activity. Although I have obtained the dye after considerable difficulty, as yet I am not able to evaluate the practicability of the method as a clinical procedure. McMaster has demonstrated by his method, among other things, the following pertinent facts:

An intracutaneous injection is invariably an intralymphatic one.

Lymph flow in the human skin is very rapid—dye injected at ankle may present a streamer 15 cms. up the leg in five seconds.

Lymph flow is increased by heat, massage, suction, muscular activity, Bier's hyperemia.

Lymphatics, severed by a wound, instead of constricting at once like blood vessels, remain open forty-eight

hours or longer, and foreign material readily enters the opened lymphatic channels.

The most active lymph flow observed was during the reactive hyperemia following upon experimental production and total relief of circulatory obstruction.

In cardiac edema the lymphatics are much widened, the valves incompetent, and the lymph flow stagnant.

In nephritic edema, in contradistinction to cardiac, lymph flow is considerably greater than normal, although the lymphatic channels are here also widened.

We shall await with interest the application of this method of study to the various types of lyphedema.

The Milk Leg Problem

On previous occasions, I have presented theories and personal conceptions of the interesting problem of milk leg. Whether or not this condition should be included in a discussion of strict lymphedema is debatable, but that lymphatic obstruction plays a part, either primary or secondary, in its chief clinical manifestation, extremity edema, seems beyond doubt. Certainly, the old idea that milk leg during the acute attack is an uncomplicated femoral thrombophlebitis and during the chronic stages simply persistent deep venous obstruction, no longer is tenable. Furthermore, there is abundant evidence that in addition to disturbance of the deep veins and lymphatics, there is involvement of the perivascular sympathetic nerve plexus and of the associated artery. Without delving too deeply into the milk leg problem, the following facts are tabulated:

The Acute Attack

A. Indications of Deep Vein Involvement
- Slight cutaneous cyanosis in early hours of the attack.
- Compensatory dilatation of the superficial veins.
- Aseptic thrombophlebitis found in femoral vein during pelvic exploration in several reported cases.[11]
- Experimental milk leg has been produced by extensive aseptic thrombophlebitic obstruction of the deep veins of the extremity by the injection of tissue extract, fibrinogen, alcohol.[12]

B. Indications of Lymphatic Involvement
- Edema is the chief clinical manifestation of the disease.
- Division of all the lymphatics at the groin in animals, leaving vein intact, produces edema.
- Ligation of the femoral vein in humans fails to produce edema.[13]
- Improvement follows decompression of the femoral sheath.[11]

C. Indications of Involvement of Perivascular Sympathetic Nerves
- Injection of salicylate of soda into the adventitial sheath of the femoral vessels is followed by edema due to involvement of the vasomotor nerves (Le Reche).
- Marked vascular spasm occurs.
- Ganglionectomy or novocaine block of the lumbar sympathetics alleviates the symptoms of the acute attack (Le Reche).

D. Indications of Involvement of the Arteries
- The pain of the acute attack in groin, back or calf is often so severe as to be only explained as an ischemia of arterial origin—due to arterial spasm.
- The extremity is often cold and numb, oscillometric readings are lower than in the companion extremity.
- The femoral artery was found contracted and in a state of spasm in a case operated on by Homans.

Chronic Stage

A. Indications of Deep Vein Involvement
- a. Obstruction
  - Dilated collateral veins across lower abdomen.
  - Positive Perthes Test.
- b. Dilatation and incompetency
  - Varicose veins, and a doubly positive Trendelenburg.

B. Indications of Lymphatic Involvement
- The edema resembles lymphedema clinically.
- The extremity is subject to attacks of cellulitis and lymphangitis typical of inflammatory lymphedema. Elephantiasis may result from milk leg.
- Persistent edema cannot be experimentally produced by venous obstruction.
- Persistent edema can be produced experimentally by occlusion of the lymphatics with silicon and quinine.[8]
- The edema is present when there is no evidence of venous occlusion such as cutaneous cyanosis or dilated collateral veins across lower abdomen.

I shall not discuss the various theories of the initial lesion in milk leg—an acute lymphangitis, or an acute thrombophlebitis, or an affection of the vascular nerve supply. The facts enumerated are, I believe, sufficient to demonstrate that acute or chronic milk leg is, in its clinical implications, a lymphedema, and should be so classified. Three stages of the condition should be recognized: first, the acute attack of thrombophlebitis and lymphedema; second, the chronic stage of lymphedematous swelling; third, a stage of recurrent attacks of cellulitis, lymphangitis, thrombophlebitis, resulting in elephantiasis.

The Treatment of Lymphedema

The treatment of lymphedema is not highly satisfactory but there is hope that the current interest in the subject may increase our therapeutic armamentarium. There is one rule, however, that should never be violated, the swelling should always be controlled, never neglected, symptomless or causing symptoms. For the presence of edema causes an ever present vicious cycle—growth of fibroblastic tissue, attacks of lymphangitis, destruction of more lym-

phatic channels, increased edema, and so long as the tendency to edema persists, the dilated lymph vessels and large lymph spaces should be compressed by an adequate support, an elastic stocking, an "Ace" or a rubber roller bandage. The criteria for the adequacy of the support is the control of the edema, and only when trial periods have demonstrated that swelling does not recur without the support should it be discarded. The tissue fluid must be returned to the blood and lymphatic capillaries as rapidly as formed.

Other less valuable medical measures are: exercise of the limb by simple movements when standing, elevation of the extremity when sitting, the principle of standing only when walking, massage, local heat with a cradle or electric heat pad, limitation of fluid intake, a low sodium, salt free diet, the use of diuretics such as ammonium chloride, theocin, and salyrgan. Sanders' oscillating bed can be expected to benefit certain cases of lymphedema.

One might speculate on the possibility of discovering an injection method of treating dilated incompetent lymphatics analogous to the injection treatment of varicose veins. It has actually been noted that regions of the body devoid of lymphatics show no evidence of disturbed physiology. But experimental work to date, such as injection of silicon and quinine into the lymphatics after the method of Drinker, produces rather than relieves lymphedema.

A few phases of lymphedema lend themselves to special forms of therapy. The attacks of acute cellulitis and lymphangitis typical of all inflammatory lymphedema and many advanced non-inflammatory lymphedemas may be aborted by acute streptococcus antiserum, sulfanilamide or X-ray therapy. Inflammatory lymphedema secondary to epidermophytosis may be benefited by eradication of the local infection and desensitization to the trichophyton. Recurrent attacks of lymphangitis streptogenes have occasionally been prevented by streptococcus vaccine or toxoid. It may well be that, if this form of therapy were made more specific according to the prevailing methods of making streptococcus vaccines in infectious arthritis, better results would be obtained. Certain modifications and new methods have developed in the treatment of milk leg. High elevation of the extremity, fluid reduction, the use of diuretics are accepted principles, during the acute stages.[14] X-ray therapy, directed to the iliac and femoral region at the onset of the attack, has been described favorably. The use of leeches over the inflamed vein is back in favor. Early block of the lumbar sympathetics by novocaine injection is advocated by Le Reche as a means of alleviating the symptoms and lessening the severity of the acute attack. Pelvic exploration and decompression of the femoral sheath have been performed during the acute attack by Homans, with benefit in several instances. Early ambulatory practice is now a recognized procedure. Early massage is now countenanced. Subsequent support of the extremity so long as edema persists is routine. On a recent visit to Rio de Janeiro, the assistant professor of gynecology of the local university informed me that he was routinely employing Le Reche's lumbar sympathetic novocaine block at the onset of all cases of milk leg, with marked alleviation of pain and rapid subsidence of edema.

Advanced lymphedema and elephantiasis require radical surgical treatment. The present surgical methods are only partly successful both in reducing the edema and in preventing the recurrent attacks of cellulitis and lymphangitis. They should not be resorted to until all other less radical measures have been tried. Thus, the use of Unna's paste boots or elastoplast bandages may so reduce the swelling and inflammation of a greatly edematous leg that a relative lymphatic compensation occurs and simple supportive measures suffice thereafter for the control of the lymphedema. Most of the surgical methods are plastic procedures, consisting of the removal of large valveless lymph spaces and hypertrophied tissue, typical of these procedures being the Sistrunk Modification of the Kondoleum, and the recently published Homans' operation.[15] More physiologic than the above would seem to be the recently published operation of Gillies and Fraser, as described by McIndoe.[16] A bridge of skin is grafted from the arm onto the trunk and thigh, so as to anastomose the lymph vessels of the extremity with those of the trunk. Support to the theory of this operation is given by McMaster's demonstration by dye injections into the skin of the extensive and apparently continuous anastomosis of the cutaneous lymphatics.

SUMMARY

The factors in the pathogenesis of edema of the extremity are tabulated. Lymphedema is defined, and the various clinical types described. Elephantiasis and milk leg are discussed. The treatment of lymphedema is presented.

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IMPERFORATE HYMEN—REPORT OF A CASE.*

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Imperforate hymen is a rather rare congenital abnormality that attains no clinical importance until the onset of the menses. Belson, in a survey of the literature, found thirty-seven cases reported between 1916 and 1936.

ANATOMY

The hymen is a thin membrane partially or wholly occluding the vaginal orifice. It is composed of two layers of stratified squamous epithelium containing between them a thin layer of connective tissue through which course a few fine nerves and blood vessels. The strength and thickness of the hymen varies from a paper thin membrane to a thick band of tissue that prevents coitus and requires surgical intervention.

The hymenal opening varies in size and shape, some of the more common forms being the crescentic, the fimbriated, the circular, the septate, and the cribriform. But it is only when it is imperforate that the hymen assumes real clinical importance.

EMBRYOLOGY

The embryological origin of the hymen is the subject of some controversy. The uterus and vagina are formed by the fused distal ends of the Mullerian ducts. These unite to form a solid core of cells, which liquefy in the center to form the uterine and vaginal canals. Until recently, the accepted theory has claimed that the distal end of this cell cord has failed to liquefy, leaving a thin band of tissue occluding the orifice.

Cunningham states that the hymen is formed by a proliferation of a small fold which arises at the point where the vaginal canal meets the urogenital sinus. C. Jeff Miller advanced the theory that imperforate hymen might be the result of a vaginal infection in intrauterine life.

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Symptoms

The symptoms of imperforate hymen are secondary to the retention of the menstrual flow. No symptoms occur until the onset of the menses. Then the patient usually complains of severe abdominal pain occurring at monthly intervals, without evidence of menstrual discharge. After a few months, there is a gradual increase in the size of the abdomen, and dysuria and constipation become marked due to pressure on the bladder and rectum. Pelvic distress and discomfort increase as the menstrual discharge distends the uterus and backs up through the tubes and into the peritoneal cavity. Weakness, malaise, and loss of appetite and weight follow. A marked secondary anemia is a common finding.

Treatment

The treatment is merely excision of the central area of the hymen. Excision by the electro-cautery is advantageous because the bleeding may be easily controlled without the use of sutures. Irrigation of the distended tract is not advised because of the danger of infection. Follow up treatment with the Elliott heat method promotes a more rapid absorption of the blood in the peritoneal cavity. Unfortunately, there is little hope of the tubes resuming their normal function, and the most of these patients remain sterile for the rest of their lives.

Case Report

Miss H. F., age fifteen, was first seen by us on October 10, 1937. The patient stated that the present illness had begun about two months previously with constant pain in both lower quadrants and gradual enlargement of the abdomen. On questioning, she recalled that she had first experienced pain about five months previously, but that it had only lasted a few days and had then disappeared. This pain had recurred at monthly intervals, each time lasting a few days, until two months before she was seen, when it became constant and of increasing severity. The swelling of the abdomen had been noted at about the same time and had become progressively larger. She also complained of weakness and lassitude and a sense of weight and pressure in the pelvis. She had become increasingly constipated and had had some frequency. Prior to the present illness the patient had enjoyed excellent health, but had never menstruated.

Fig. 1.—Patient recumbent, showing tumor mass extending to umbilicus.

Fig. 2.—Vulva, showing distended hymen and bulging of perineum.

Physical examination revealed a poorly nourished white female of about fifteen years of age who seemed to be in intense pain. Her face had a drawn agonized expression and she lay with her knees drawn up. Her skin was pale and moist and she appeared acutely ill.

On abdominal examination, there was a large, irregular, mass filling the entire lower abdomen and pelvis and extending to about one finger above the umbilicus. The left cornu of the mass extended up past the umbilicus to the region of the left kidney. The abdomen was tense, of a board like consistency, and exquisitely tender.

On pelvic examination, the perineum was bulging and the labia gapping. The hymen presented a shining distended surface with no evidence of an opening. It had the appearance of unruptured membranes distending the vulva in the late second stage of labor.

The patient was hospitalized immediately, and on October 11, 1937, under nitrous oxide-oxygen anesthesia, the hymen was incised. Using the electrocautery, a circular opening was made, the entire central portion of the hymen being removed. About 2,000 c.c. of dark, tarry fluid drained off following the incision of the hymen. The patient was discharged five days later, at which time the abdominal mass had entirely disappeared.

The patient was seen at regular intervals, and examination six months later showed the pelvis to still be filled with a doughy mass. The abdomen, however, was flat but the pelvic organs could not be palpated. Menstrual periods have been normal since the operation, and all symptoms have disappeared.

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THE HEALING PROCESS—GENERAL PRINCIPLES.*

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All physicians are familiar with the general plan of the healing process of severed tissue, the newly forming fibroblasts, with budding capillaries pushing across the gap. The local requirements for this process can be reduced to very simple terms—good blood-supply, the maintenance of direct contact of tissues, rest, and the avoidance or control of infection.

Blood-supply depends in the first instance upon the location of the injured tissue. Wounds and incisions about the face heal with promptness and certainty because of the excellent blood-supply, even when obviously infected from the mouth; lacerations over the shin-bone heal slowly and imperfectly, and the resulting scars are prone to break down again with little provocation. Surgery of the lower bowel is difficult and perilous, chiefly because the local blood-supply is so poor.

One of the major impediments to good blood-supply is the presence of tension. This may be due to unduly tight suturing, so that the stitch strangles all the tissue within its grasp. It is often due to swelling of the neighboring parts, and allowance for this must be made sometimes when wounds of the extremities are sutured, making relaxation incisions alongside if the wound edges will not easily meet otherwise. A most dangerous place to permit tension is in suture of the abdominal organs; it is a commonplace that they must come together easily, or the suture-line will fail and peritonitis result.

Distention of the hollow organs is an important cause of tension in their walls, impairing blood-supply and endangering the suture-line; and this is why colostomy or enterostomy or the Wagensteen method of suction is sometimes vital in surgery of the stomach and intestines, and why continuous drainage must be used in surgery of the bladder.

A classical example of the baleful effect of tension is the broken arm in children, just above the elbow, where tension may so impair the blood-supply to the whole forearm that a useless, shrunken, claw-hand—Volkmann's contracture—or even gangrene can be the result. This tension is sometimes due to keeping the elbow flexed too much, in an attempt to maintain good position of the break; sometimes, no doubt, to putting on a tight circular cast, though nowadays doctors have been warned against this procedure so often that they mostly know enough to avoid it. A most important cause, less generally recognized, is an associated rupture of the brachial artery, which permits a volume of blood to be forced into the soft tissues under the deep fascia, under full arterial

*Read before the sixty-ninth annual meeting of the Medical Society of Virginia, in Danville, Va., October 4-6, 1938.

pressure. This applies a sort of internal tourniquet to the elbow, no further blood being able to get by the barrier. Treatment is simple if radical—incision boldly through the deep fascia to relax the tension. I believe that I am correct in stating that in general, Volkmann's ischemic claw-hand should not occur; for its causes are subject to correction, and arterial anastomosis about the elbow is very free.

One of the important requirements for sound healing is direct contact of the healing tissues. The less the gap that has to be bridged, the more quickly and certainly the new fibroblasts from each side can heal together with each other; and this is of course the reason for using sutures. It is also, parenthetically, a reason for being sure that the right tissues are being sewed together. Ever so often, someone stitches a severed median nerve to the severed end of a tendon, or, in suturing a nerve, allows it to rotate so that the wrong fibres are brought into apposition and made to heal together. These are obvious errors; an error less obvious is to repair a hernia without being sure that all the fine soft areolar tissue is thoroughly wiped off from the aponeurosis, from Poupart's ligament and the conjoined tendon. If this is not accomplished, a moment's reflection will show that only the soft fatty network is really being made to heal across the gap, for this soft tissue still remains interposed between the important tendinous structures which were intended to be welded directly together by firm fibrous tissue. I am convinced that this is quite enough to explain some of the failures in hernial repair. The wrong tissues again are in contact if muscle is interposed between the ends of a broken bone, and it is no wonder that this situation is frequently followed by non-union.

Quickest and soundest healing in the depths of a wound takes place when there is no dead-space; for when the tissues are not in contact, it obviously increases the distance that has to be crossed by the delicate newly forming fibroblasts and capillaries, in order to consolidate healing. Dead-space is to be avoided by sutures of mild and even tension, carefully approximating the deep parts and holding them in direct contact, and by taking measures to prevent the collection of fluid. Careful hemostasis serves to prevent gross hematoma, but in deep wounds some serous fluid always forms. This is to be provided with an exit by spacing the skin sutures, and its accumulation prevented by mildly snug compressive dressings. It is a mistake to use a water-tight continuous skin stitch, in closing a wound of any depth; the result is apt to be an embarrassing pool of fluid, demanding exit at a time when the whole wound ought to be soundly healing.

Moreover, dead-space favors infection, for even a few bacteria readily multiply in pools of serous fluid. This again is of course an elementary commonplace of surgical knowledge. Its importance is forcibly emphasized when foreign material, such as a steel plate, is to be left in a wound, any dead-space almost guaranteeing that infection will occur.

One of the most important things to do, to favor prompt healing, is to let the wound alone. Every disturbance of the parts is likely to disturb the healing cells that are trying to cement the injured tissues together, perhaps to tear some of them loose and break up the fragile capillaries, only increasing the difficulties of their necessary work. The whole involved region is therefore to be kept quiet, and the dressing is only to be changed for some specific reason, as for example to permit the exit of excessive fluid, or to loosen the bandage if it is really too tight. The patient may feel neglected unless you change his dressing every day, but it is much sounder practice to let it alone in clean wounds. Healing is decidedly quicker if the whole patient is kept in bed for a few days.

It is true that a few special situations demand motion in the injured member. There is good authority for beginning motion in the case of sutured tendons within a day or two. Consideration, however, will show that in reality it is movement of the tendon in its relation to surrounding structures that is advised, and for the reason that healing and adhesion to them is definitely not wanted. Motion of the tendon-ends with relation to each other is prevented by the sutures; this being the place where healing is wanted. If early motion is not begun, there is a probability of both tendon ends healing solidly to the surrounding parts, which defeats the purpose of the operation of tendon-suture.

Infection practically destroys any possibility of primary healing. All the healing forces are drafted into battle against the invading army of bacteria, sapping the energy that should have been used for repair; pus is formed and demands exit, the tissues are inflamed and separated, and when the wreckage is finally cleared away, nature can only resort to delayed healing by granulation.

In a general way, lacerated wounds that are

treated within four hours or so can usually be gotten to heal by first intention if ragged tissue is trimmed away and good gross cleansing accomplished. As above noted, skin stitches are to be spaced, and a fairly snug dressing applied to prevent pooling of fluid. Small strips of thin rubber tissue may be used for definite drainage at intervals, if you like, so long as they do not touch bone or tendon. And, most important, don't forget to hang out the sign that hotel guests find so useful—"Don't Disturb." Any possibility of low-grade infection only renders this precaution the more imperative; it is most imperative of all where there is a compound fracture.

I have no comment to make on the primary use of antiseptics in the depths of the wound. It is entirely possible that weak antiseptics are useless, strong ones harmful. I have seen wounds heal, and fail to heal, both with and without them.

We have perhaps gotten away too far from the lessons learned at great cost during the war; it must not be forgotten that the correct use of Dakin's solution, with proper surgery including primary debridement and delayed or secondary closure, did bring about healing that would have otherwise apparently been impossible.

If infection takes place, the only resort is to open the wound and wait for secondary healing. The problems of infected wounds cannot be considered in this paper.

A certain gross thickness of tissue is needful for good primary healing over avascular structures like tendons or bone, otherwise the skin edge separates and healing takes place only by granulation, with an adherent scar as the result. This is the situation with lacerations over the back of the hand, for instance. Since the subcutaneous tissue here is thin, it is good practice purposely to thicken this layer by a few buried sutures, which evert the skin edges so that they stand up together as a ridge above the surface-level. I learned this little trick, among many others, from the late Southgate Leigh.

In making operative incisions in such locations, it is accepted practice to approach the deep structures through a skin incision placed somewhat to one side, curving it to form a shallow flap if necessary. This is particularly important when foreign material such as a plate or bone-graft is to be left in place.

Foreign bodies present a special problem in which there is perhaps no general rule to follow. Most small projectiles, if buried deep, will heal in place and give no trouble, and it is not really necessary to remove them. Ten thousand men now walk the streets with machine-gun bullets and even rough pieces of shrapnel still buried somewhere inside, demonstrable only by X-ray. Many colored brethen have been sprayed with buckshot in the chicken-yard, with temporary pain and chagrin as the only untoward result. Where, however, gross pieces of overcoat or shoe-leather are carried in along with the bullet, the whole mass of foreign material will have to be removed. In any case, where an abscess forms, a retained foreign body will prevent healing indefinitely. Foreign bodies introduced at operation, such as steel plates or nails, will only heal in place if rigidly aseptic technique is used. The skin should be completely blocked off. Lane technique is best.

It has been very illuminating from time to time, to watch some of the older surgeons handle the problems of healing. I pay tribute here again to the late Southgate Leigh, for instance, who would treat a severe compound fracture by opening everything widely, trimming off ragged muscle and fascia, adjusting the bone with or without internal fixation, and then closing the wound with a few spaced interrupted sutures. He then put on a voluminous padded dressing with a snug bandage, applied a cast, and left the whole thing strictly alone for about a month. I observed no delicate finesse in his work, but you will note that he saw to every one of the fundamental principles that aid in prompt healing, with emphasis on bandaging to eliminate dead-space, enough room between the stitches for seepage of excess fluid, and complete rest and quiet of the injured parts; and I assure you from observation that healing was indeed prompt and by first intention.

The most familiar wound we have to consider is of course the abdominal incision. Curiously enough, even very good surgeons fall into routines of closure that do not always fit in with the laws of sound and speedy healing, and some of them would be chagrined occasionally if they dressed all their cases in person. A common custom, even when the patient is fat, is to close the skin water-tight with a running dermal stitch, and apply only a loose dressing. All goes well for a week, when a little rise in temperature is noted; and about the tenth day someone has to separate the wound edges with a clamp, and is rewarded with half a cupful of chocolate fluid. This only happens occasionally, it is true, and no great

harm is done; but it is not the desired per priman healing either.

The explanation of this minor calamity is probably simple. Bloody fluid has collected in the fat layer, partly from oozing, partly from broken down fat, as perhaps it always does. It has happened to gather in sufficient quantity to fail of absorption, so that an outlet is demanded.

In this connection, it has been my fortune to observe an abdominal wound when the patient woke up a moment too soon, and vomited, before I had completed closure. I had thought that hemostasis was good, but during this bout of vomiting, she bléd from every pore in the fat layer. I am quite sure that any patient who vomits immediately on waking, oozes a little blood into the depths of the wound.

The remedy, then, is also simple enough; don't sew up the skin water-tight in patients with a thick fat layer; but leave a little room between stitches for bloody serum and broken-down fat to exude. Better still, insert three or four narrow strips of thin rubber, to drain separately each of the three or four compartments in the fat layer that are closed off by the silk-worm tension sutures. And be certain that the adhesive is snug enough to make a little moderate pressure on the incision, to eliminate dead-space. I can assure you that this simple procedure, practiced in patients with a thick fat layer, has avoided this sort of trouble in my own hands, in recent years, with almost complete certainty.

To cite, now, one of my own technical errors, I lengthened a short Achilles tendon by open operation, sewed it together with silk, and then closed the skin water-tight, according to a familiar routine. I bandaged the ankle snugly, and no doubt all would have gone well if the patient had not had quite a thick layer of subcutaneous fat, and if I had kept her strictly in bed for a few days. Instead, I let her go home in a day or two, hanging the foot down for a brief time while getting in and out of her car. The result, as in the abdominal wounds I spoke of above, was a collection of fluid, and, when I opened the incision to let it out, a mild infection compelled me to go in after my silk suture in the tendon. All this was entirely unnecessary, and was due only to following mechanically an accepted surgical routine without further thought. The correct procedure would have been to suture the skin with interrupted stitches or Michel clips, leaving a little space between them to permit oozing; and I should have insisted on keeping the leg strictly horizontal for several days more than I did. Again, no great harm was done, but it was a doctor's wife I was treating, and he was perfectly well aware that I should have obtained primary healing, though he was kind enough not to take me to task about it.

When the primary healing process fails, nature substitutes secondary healing, a slower and less perfect process, but usually fairly satisfactory in the end. In certain situations, however, complete failure of primary healing is a serious and even a fatal matter. This is especially true of the abdominal incision. Disruption does not occur often, but according to the literature even experts have had it happen. I am glad that I am in good company, for it happened to me about fifteen years ago; since then I have no longer classified the closure of an abdominal wound under the heading of a minor routine, to be left to the resident.

The causes of disruption are many; analyses have sometimes implicated imperfect suturing of the peritoneum, an omental tag pushing into the gap and widening it. This would be a decided possibility in the upper rectus region, for here the fibres of the sheath run transversely, and sutures can pull out between them. Undue strain on the incision certainly plays a part, and I am one of those who believe in strapping abdominal incisions quite snugly to take off some of the strain on the stitches. Precision of layer suture is not entirely essential. Mass suture of the abdominal wall results in strong healing, and indeed mass suture is resorted to as a method of repair of disrupted wounds.

General causes appear to play a major role in wound disruption; and these include catgut allergy and protein insufficiency as well as general debility and poor general healing power. These general conditions come under the head of medicine rather than surgery, and this is one reason why medical consultation is so desirable in treating seriously ill surgical patients. Much can be done by general measures including transfusion, to increase resistance and healing power; and operation should only be done when the patient has been put in as good general condition as is possible under the circumstances.

I am sometimes inbued with enough pride of craft, by the way, to permit myself the conceit that a surgeon is apt to know more about a patient's general condition than any but very expert medical men—that is, how much he will stand and what the limits

of any advisable operation may be. I hope that I shall be forgiven this heresy by my medical colleagues, for whose judgment I have the sincerest regard. Let the surgeon and the internist, each in the pride of his craft, do each the utmost in his power to see that the limit of the patient's endurance is not approached, far less reached, by any procedure intended to heal him. For each must depend upon the other for his special knowledge.

In summary, then, let me emphasize the avoidance of tension; the use of spaced interrupted skin sutures when the fat layer is thick, or oozing is likely, or when the wound is probably contaminated; the use of moderately snug dressings to overcome dead-space; strict rest to the involved part; and the avoidance of stereotyped routines followed without thought of their effects in detail. And let me call attention, as all writers do sooner or later, to the fact that it is the whole patient, not the local operation, that must be considered; and that for his healing, and even his survival, he must be in the best general condition possible under the circumstances surrounding the case.

712 Botetourt Street.

Correspondence

A Correction.

TO THE EDITOR:

My attention was called to an article in your publication of February, 1939, by Drs. Emmett, Fliess and Yorkoff. (Vol. 66, No. 2, p. 107). On that page, in the second paragraph, the following quotation of my article appears: "There is no rebound tenderness on the right side", etc. This is erroneous. In my article and in the reprints I state that there is always a certain amount of rebound tenderness but no rigidity. In fact this is one of the diagnostic aids and facilitates the diagnosis.

New York City, WM. KLEIN, M.D.
May 10, 1939.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for April, 1939, compared with the same month in 1938, follows:

	1939	*1938*
Typhoid and paratyphoid fever	6	20
Diphtheria	56	50
Scarlet fever	139	153
Measles	2,681	2,603
Meningitis	3	14
Poliomyelitis	1	2
Rocky Mountain spotted fever	0	0
Typhus fever	0	0
Undulant fever	1	6
Tularemia	1	1

MALNUTRITION

At intervals, during the last ten years, it has been estimated by those investigating the subject that from 15 to 20 per cent of all children in the United States were to some extent suffering from malnutrition. That this condition exists to such a marked degree is fully appreciated both by physicians and public health officials.

Malnutrition is a relative term, well understood but difficult to define concisely. It signifies an interference in the proper building up of body tissues and in the liberating of energy. It is to be distinguished from undernourishment. Malnutrition is largely a qualitative term; undernourishment, on the other hand, is a quantitative one, though they may overlap and usually do.

While poverty is recognized as a contributing cause of malnutrition, the surveys indicated that no class in the economic scale was immune. Indeed, in some localities, reports showed that children in the upper income group were malnourished to an even greater extent that many children of the poor.

The investigations also elicited that mentally retarded children, as distinguished from the mentally defective, frequently were below weight and height for their body-type and age. This led to the conclusion that some children have been classed as mentally defective when their retardation was merely a matter of prolonged lack of the proper kinds of foods in sufficient quantities. As is well known, the symptoms of malnutrition usually include absence of physical and mental energy, inattention, poor memory, slow comprehension, and unusual restlessness.

The prevalent custom of weighing and measuring a child, followed by a comparison with the weight and height chart in itself, without consideration of body-type, is no longer considered efficient; in fact, at times it results in a grossly inaccurate picture.

Striking cases of malnutrition due to starchy diets have been noted where the weight and height for age compared favorably with the chart. Consequently, weight and height charts should be used only as one index of a child's condition. A proper consideration of the individual body-type is extremely important in reaching the proper conclusions. If the facts thus brought out are complemented by a medical examination, it is possible to differentiate between those who are malnourished and those who are undernourished.

It has been the experience of the physicians connected with the clinics of the State Department of Health that too much emphasis cannot safely be placed on whether or not a child is within or below the 10 per cent chart average. It follows that those children who have below-average bodies, or those who are having defects corrected, require re-examination at close intervals to check on the progress of their physical development. Individual *types* cannot be changed or markedly modified by the forcing of food or calorie intake.

As is well appreciated, faulty health habits, acute disease, physical defects, especially diseased tonsils and sinus infections, chronic otitis media, carious teeth, eye-strain, syphilis, tuberculosis, chronic overfatigue, nervous excitements due to examinations, too much home-work, too many outside activities, either mental or social worry, too little outdoor activity, too little sleep, and faulty dietary habits, singly or in combination, are important causes of malnutrition.

Consequently, while, as previously observed, poverty is doubtless back of many malnutrition cases, parental coddling, ignorance, and shiftlessness are sometimes large contributing factors. A careful history followed up by a thorough physical examination will usually produce findings which, when evaluated properly, will enable the medical examiner to give an efficient service to the patient.

The importance of infections of the tonsils, teeth, and nasal sinuses is sufficiently well established to demand that these structures be investigated when general health is impaired. While there can be no doubt about the wisdom of eradicating known foci of infection, there is real danger that meddlesome treatment will at times be undertaken when it should have been avoided. The improvement in appetite which follows the removal of infected tonsils is sometimes marked. However, it does not always follow that whenever a child has a poor appetite he will show improvement after the tonsils have been removed.

Physical defects of necessity will react adversely upon nutrition. Poor nutrition thus produced in turn will result in a decreased neuromuscular tone, increased fatigability, poor posture, poor functional activity of the respiratory system, the circulatory organs, and the digestive tract. The effect of all this will be a still greater impairment of nutrition with the establishment of a vicious cycle.

Unless measures are instituted to correct the condition or the conditions primarily responsible, more serious results of defective nutrition may manifest themselves. Among these there may be a severe nutritional anemia, which will take months of careful treatment to correct. Frequent infections of the upper respiratory tract also may result. The problem thus becomes a complicated one. The correction of physical defects alone may not be sufficient to effect an improvement in nutrition at this stage, since the disturbed nutrition itself, if of long standing, may have caused damage to many tissues and organs of the body.

The State Health Department's clinic experience has demonstrated that every case of disturbed nutrition should have the benefit of careful medical examination and advice in addition to the *proper* comparison of weight and height with the weight and height chart.

YELLOW FEVER VACCINATION

In a recent letter addressed to the State Health Department from the U. S. Public Health Service, the Service offers free vaccination against yellow fever to medical personnel in infectible territory of this country, including Virginia. It is known that the Aedes aegypti mosquito may be found in certain areas of this State at certain times.

In making this offer the Service hopes that by this means a nucleus of immunes may become available to be called on for immediate assistance in combating the disease should an outbreak occur.

The vaccine used would be that supplied by the Rockefeller Foundation. It is administered in a single injection and in the great majority of cases causes very little or no discomfort. In a small proportion of cases, there has appeared a slight rise of temperature with some malaise on the seventh or eighth day.

The Department has been advised that excellent results have been obtained in recent months in the

control of yellow fever in South America by the immunization of persons exposed to, or living in, infected areas. Over one million such vaccinations have been performed in Rio de Janeiro and adjoining states, with immunity effectively established.

Any physician in Virginia interested in establishing personal immunity against yellow fever should contact Assistant Surgeon General C. L. Williams, Foreign Quarantine Division, U. S. Public Health Service, Washington, D. C.

Woman's Auxiliary to the Medical Society of Virginia

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Address by Dr. Moncure to Woman's Auxiliary.*

I don't know whether I am going to accept this job another year, even if Alex. Robertson and the members of the Auxiliary ask me to serve on it. I am superstitious. In the Negro ward of the hospitals of Norfolk, if one patient dies, every Negro in the ward who can travel, and many who can't, are trying to check out, saying they are well enough to leave. The slogan is: If one dies, at least three will die; and each one is afraid he will be next. I hold the position of chairman—it is an honor; and the work, if you could call it work, attached to it is a real pleasure. But is the job safe? A few years ago Dr. Leigh was chairman. What happened to him? He is now only a sweet memory of the past. Succeeding him, and following him in rapid succession, were our dear old friends, Drs. Hodges and Fletcher Wright. I feel as if maybe I had better do as the Negro patients did—resign and leave while the leaving is good. Maybe Alex. Robertson will appoint young men, men capable of doing more for you than I. But I want to say this for the three chairmen who have preceded me: You may find younger, and even intellectual giants, but you will not find more loyal, truer, enthusiastic friends of your cause than the three chairmen I have just mentioned.

Your secretary, in inviting me to this luncheon, asked me to make an address, and said I could talk to you on any subject I wished—the only stipulation she made was that it should be *short*. I then began to think: What subject could I speak on a few minutes, and make it interesting? I shall mention a few of them, and my reasons for discarding them: (1) *The Doctor's First Assistant.* I discarded it at once. The title would be written backwards—the doctor is the assistant, not his wife. (2) *The Doctor's Silent Partner.* I discarded it. You know why. Impossible! You know full well the doctor could not keep his wife silent. (3) *How far Should the Doctor Take His Wife into His Confidence, and Practice?* The subject would be a violation of the Hippocratic Oath. (4) I thought of another good one: *Burying the Doctor's Mistakes.* I thought how nice a paper I could write on that subject, and how true it would be, but our mistakes are so many, my paper would be so long. My wife would surely be burying me, my patients, and my friends or I might bury her. I surely would be burying my patients. Then I decided that the best subject I could write, or talk about, would be: *The Doctor's Wife—His Greatest Comfort in Moments of His Greatest Perplexities, and Needs.*

There is no physician who possesses a soul, and practices medicine—whether he be general practitioner, surgeon, pediatrician, obstetrician, or any other specialist—who does not suffer, and bleed, and die with his patient; and in these darkest hours when he comes home in the depths of woe, perplexed to the last limit over some case that was not turning out as he had hoped; and when the family and patient were all looking to him to do perhaps some miracle; when he dares not tell the family of the patient what he fears; and he is at the end of his tether, who is it that can give him comfort but his faithful wife? She intuitively knows it all—by the look on his face—before he tells her a word. He may not even tell her, but the simple touch of her hand, perhaps a kiss, or one little bright word of encouragement from her smooths away his fears, and gives him that assurance that can come from no other source. When he makes an error in diagnosis, or judgment (and

*Address given at the annual meeting of the Woman's Auxiliary to the Medical Society of Virginia, October, 1938, by Dr. P. St. L. Moncure, chairman of the Advisory Board from the State Society.

we all make them), and things have not turned out just as he had hoped, it is his sweet and faithful wife who can reassure him and make him feel that he did the very best thing that could have been done under the circumstances. They usually think their husbands are the greatest physicians on earth. She enters into his thoughts, and thinks, and speaks for him—she will even lie for him.

Again he has a remarkable, difficult case—he studies it hard; she encourages him in his studies—keeps things quiet for him; he makes a brilliant success in his diagnosis and cure; he needs encouragement; he needs someone to pat him on the back; the profession and outside world care nothing for him—will not even read his carefully written account of it. It is his ever faithful wife who is carried away with the successful outcome of his case. *She is his inspiration, whether he knows it or not.*

I know of no better way to close these remarks than by quoting the lines of Owen Meredith:

"The mission of woman on earth! To give birth
To the mercy of Heaven descending on earth.
The mission of woman: Permitted to bruise
The head of the serpent, and sweetly infuse,
Through the sorrow and sin of earth's registered curse,
The blessing which mitigates all; born to nurse
And to soothe and to solace, to help and to heal,
The sick world that leans on her."

My dear girls, you do not realize the great good you do, the power you have. To quote another poet—the ancient greek Anacreon—in his twenty-fourth ode (this is taken from Dr. Theophilus Parvin's address on woman):

"To man she gave in that proud hour
The boon of intellectual power.
Then what, O woman! What for thee
Was left in Nature's Treasury?
She gave thee beauty—mightier far
Than all the pomp and power of war.
Nor steel, nor fire itself hath power,
Like woman in her conquering hour.
So be it fair, mankind adores thee,
Smile and the world is weak before thee."

Radio Health Broadcasts.

June 7—*Vacations: Why and How*—Making the vacation a real contribution to health and recreation.

June 14—*Never Stop Learning*—A new phase of life begins at commencement, and health contributes to success.

June 21—*Answering Your Questions*—What kind of health questions can be answered and what kind can't without seeing the patient?

Truth About Medicine

In addition to the articles previously enumerated the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

The Upjohn Company

Ampoule Solution Sodium Morrhuate 5 per cent with Benzyl Alcohol 2 per cent, 2 cc.

Solution Sodium Morrhuate 5 per cent with Benzyl Alcohol 2 per cent, 30 cc. vials.

Ampoule Solution Sodium Morrhuate 10 per cent with Benzyl Alcohol 2 per cent, 2 cc.

Solution Sodium Morrhuate 10 per cent with Benzyl Alcohol 2 per cent, 30 cc. vials.

Tablets Sulfanilamide, 5 grains.

Tablets Sulfanilamide, 7½ grains.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Mead's Nicotinic Acid Tablets, 20 mg.—Each tablet contains nicotinic acid (*The Journal,* July 2, 1938, p. 27), 20 mg. Mead Johnson & Co., Evansville, Ind.

Hypodermic Tablets Digitalin (German, Pure, Merck), 0.00065 Gm., 1/100 grain—Upjohn.—Each tablet contains digitalin, "German" (New and Nonofficial Remedies, 1938, p. 191), 0.00065 Gm., 1/100 grain. The Upjohn Company, Kalamazoo, Mich.

Tuberculin Ointment (Wolff)—Lilly (New and Nonofficial Remedies, 1938, p. 408).—A culture of human tubercle bacilli (H-37) of four weeks' growth in glycerin broth, sterilized, evaporated to one-fifteenth its original volume and triturated to a smooth mixture, to which 0.4 per cent of phenol is added as a preservative. It is proposed for use as a tuberculin test by the patch method. Marketed in packages of one 2 Gm. collapsible tube with a 2 Gm. control tube. Eli Lilly & Co., Indianapolis, Ind. (*J. A. M. A.,* April 1, 1939, p. 1257.)

Cinchophen—The Upjohn Company.—A brand of cinchophen—N. F. (New and Nonofficial Remedies, 1938, p. 177).—The product is marketed in the form of tablets, 5 grains and 7½ grains. The Upjohn Company, Kalamazoo, Mich.

Solution Liver Extract Purified—Lilly.—A sterile aqueous solution of liver extract purified preserved with 0.5 per cent phenol, containing 15 U.S.P. units per cubic centimeter. Solution liver extract purified—Lilly is proposed for intramuscular injection in the treatment of pernicious anemia. It is marketed in packages of three 1 cc. rubber-stoppered ampules. Eli Lilly & Co., Indianapolis, Ind. (*J. A. M. A.,* April 22, 1939, p. 1591.)

Propaganda for Reform

"Vitamin K," A Principle Useful in Certain Hemorrhagic Conditions.—The Cooperative Committee on Vitamins, representing a combined committee of the Council on Pharmacy and Chemistry and the Council on Foods of the American Medical Association, considered the evidence for a principle called "Vitamin K," reported to be useful in the treatment of certain hemorrhagic conditions. The Committee recommended that a preliminary report be issued on this principle and the recommendation was adopted by the Council on Pharmacy and Chemistry. Dr. A. M. Snell of the Mayo Foundation, who has been working with this principle, prepared a report which was adopted by the Council for publication. The Council agrees with Dr. Snell that the principle known as Vitamin K appears to have therapeutic usefulness in the hemorrhagic manifestations of hepatic and biliary disease. The Council has authorized its Committee on Nomenclature to study the question of a suitable nonproprietary name which shall not be therapeutically suggestive. The Council voted also to consider with view of acceptance brands of "Vitamin K" under strictly limited claims for usefulness in the hemorrhagic diathesis of hepatic and biliary disease. (*J. A. M. A.*, April 15, 1939, p. 1457.)

Report on the Use of Roentgen Rays for Contraception.—In 1932 Harris (Am. J. Roentgenol., 27:415 (March), 1932) and in 1936 Mayer, Harris and Wimpfheimer (J. Obst. & Gynec., 32:945 (December), 1936) published articles dealing with the use of roentgen rays to produce therapeutic abortion. Their results were satisfactory, and they advocated this method as particularly desirable in cases in which surgery is hazardous or contraindicated for medical reasons. At the organization meeting of the Council's Committee on Contraceptives, it was suggested that roentgen rays had been used to cause sterility in women or to interrupt pregnancy for nonmedical reasons. Dr. A. U. Desjardins, in an effort to determine how extensively roentgen rays are being used for these purposes, wrote to twelve radiologists throughout the country. In all but one instance the replies from these men stated that they were not aware of such a practice, certainly on the part of reputable members of the profession, and were doubtful whether this technic was being employed to any appreciable extent by less scrupulous practitioners. (*J. A. M. A.*, November 5, 1938, p. 1767.)

Racephedrine (Racemic Ephedrine), Racephedrine Hydrochloride (Racemic Ephedrine Hydrochloride) and Racephedrine Sulfate (Racemic Ephedrine Sulfate).—The Council on Pharmacy and Chemistry reports that the manufacturer of a brand of synthetic racemic ephedrine hydrochloride asked the Council to adopt a nonproprietary name. The Committee on Nomenclature voted that the name Racephedrine be recognized as a nonproprietary designation for the racemic ephedrine base and that Racephedrine Hydrochloride be the name for racemic ephedrine hydrochloride. The Council voted to include Racephedrine Hydrochloride in New and Nonofficial Remedies. The Council has under consideration Racephedrine and Racephedrine Sulfate. (*J. A. M. A.*, April 1, 1939, p. 1256.)

Book Announcements

Failure of the Circulation. By TINSLEY RANDOLPH HARRISON, M.D., Associate Professor of Medicine, Vanderbilt University School of Medicine, Nashville, Tenn. Baltimore. The Williams and Wilkins Company. 1939. Second Edition. Revised. Octavo of xiv-502 pages. Cloth. Price, $4.50.

A review of this book appears in the editorial columns.

Surgical Treatment of Hand and Forearm Infections. By A. C. J. BRICKEL, A.B., M.D., Departments of Anatomy and Surgery, Western Reserve University. St. Louis. The C. V. Mosby Company. 1939. Octavo of 300 pages. With 155 Text Illustrations and 35 Plates Including 10 in Color. Cloth. Price, $7.50.

The first hundred pages of this book are given over to a discussion of that portion of the anatomy of the hand which is most important in relation to infection. There are thirty-two excellent plates, showing the relations of the various structures and spaces at different levels and planes. Eighteen of them illustrate the results obtained by the injection of a radiopaque substance into the important spaces. In general, the results of these injections are the same as those shown by previous authors, with the exception that a separate mid-palmar space medial to the insertion of the adductor pollicis muscle was not demonstrated. This section of the book is probably the most important part, for it is obviously impossible for a surgeon to treat injuries or infections of the hand intelligently without having a thorough understanding of this anatomy.

In the mid-portion of the book, pages 100 to 260, the general principles of the treatment of hand infections are discussed, as well as the specific treatment of infections in the various spaces. This section is illutrated by a number of excellent photographs which add to the value of the book.

The last part of the book contains discussions of human bites of the hand, the effect of various constitutional diseases on hand infections, and the medico-legal aspects of such infections. The section on human bites is not as complete as one might wish.

The print is good and the photographs and plates are well reproduced. The descriptions of some of the operative procedures are sketchy but most of them are satisfactory.

This book should be a distinct addition to the library of any physician but should prove especially valuable to medical students, house officers, and young surgeons. I. A. BIGGER, M.D.

Virginia Medical Monthly

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Editorial

The White Doctor's Case.

Commenting upon the A.M.A.'s refusal to admit colored doctors to its constituent societies, an editorial in the *Richmond Times-Dispatch* of May 17, 1939, closed by saying: "Unless the Southern white physicians open the doors of their local societies to these doctors, they cannot get in touch with the vital current of medical thought in America."

The medical care of the negro race through the years of this country's existence has been borne largely by the Southern doctor. To him are the diseases peculiar to the race best known and to him has come an understanding and appreciation of the problems of that race unexcelled by that of any other segment of society. His regard for the negro doctor and his desire to help him are sincere and founded upon knowledge, but faced with the proposal made by the esteemed writer of the editorial in the *Richmond Times-Dispatch,* the average doctor will find himself unable to agree with its contentions. He will recall that there is a national medical association composed exclusively of negro doctors and that in Virginia there is the Old Dominion Medical Society similarly constituted. He knows that "the vital current of medical thought" does run in local medical societies, but that it is chiefly to be found in the many medical journals published in this country which are equally available to white and colored doctors. He knows that all who wish may read, learn and inwardly digest their contents. He knows that in many instances colored doctors have been welcomed as visitors to medical meetings and that in many medical schools they are being taught side by side with white students. Perhaps the average Virginia doctor, as things now are, would not object to negro students being admitted to his own medical schools. It is logical that the institutions of higher learning, so impossible of duplication for the negro because of the prohibitive expense that would be involved, tax supported and state owned as they are, should make their opportunities available to all who desire them and can take them. It is in such institutions too that one can reasonably expect to find that broad intelligence that can see old *mores* set aside with the least trauma. Each year the Medical College of Virginia gives a course of postgraduate instruction to colored physicians, and teachers and students alike enjoy the course. These things are right and proper because they are a part of the general distribution of the services of the free institutions to which, under the constitution, every citizen is equally entitled.

It is true, as our editorial writer believes, that a medical society is a scientific body, but it is also a private organization. Its control, its principles and purposes, are vested solely in its membership. As a matter of fact, medical societies are not entirely scientific associations; they are partly social. Time

and again doctors have tried to conduct purely scientific meetings in their societies only to discover that their meetings succeed best when social features are added. The North Carolina Medical Society held its annual meeting this year on board ship accompanied by wives and daughters, with social features a prominent part of the program. The Medical Society of Virginia will close its meetings this fall in Richmond with a banquet and a ball. The Richmond Academy of Medicine building contains a banqueting hall, a kitchen, a commodious lounge and library—all frequently used, greatly enjoyed, entirely a part of the life and usefulness of this center of Richmond's medical progress. At the close of every Academy meeting a social gathering is featured.

"Southern white physicians are urged to open the doors of their local societies to these doctors." The writer of those words had probably never attended a medical meeting and did not know that those doors lead straight to a break in the social isolation of the two races, which is essential if racial purity and integrity are to survive. With malice toward none, we are sure those doors ought not, for the present at least, to be opened in the sense of the words employed by the editorial writer.

There are times when what is ideally right is wrong because it is impractical. This is the answer not only to this editorial but to much of what the lay public and press have said to and about the medical profession in the last few years. Those who believe most firmly in the American way of life believe about this question as they do many another question: that doors always open to races, to sexes, to individuals, in answer to their own honest effort—effort which may have to be sustained through the years, often in hardship, often in discouragement, often in unfairness, often in injustice. Few doors open of their own accord to anyone, male, female, black or white, and few doors are opened by benevolent commentators. Life is harder than that, but one of its chief glories is self-determination.

A Good Book and a Moral.

The second edition of Tinsley Harrison's *Failure of the Circulation* (Williams and Wilkins, Baltimore, 1939) reveals many changes. In his first book Harrison attempted to combine the clinical and physiological aspects of heart disease in a readable composition. In his second he states that his object is to reduce the discrepancy between our knowledge of what happens in heart disease and our understanding of why it happens. This he attempts to accomplish by an analysis of "the several major syndromes and the functional basis of each". Acknowledging that we have very few methods for treating the causes of heart disease he proposes to emphasize the treatment of the results. In this edition there are some additions, some rearrangements and some alterations in terminology. It is a book in which the southern medical profession can well take pride as the author is one of the faculty members of the School of Medicine of Vanderbilt University. Virginia lays a characteristic genealogical claim to him since his mother was born in this State.

It is to be noted that Dr. Harrison is only one member, and a younger one at that, of the Medical Department of Vanderbilt University. His book well illustrates what can be accomplished by team work in a medical school and the spirit of cooperation that should dominate practice, administration and research in every department of a teaching institution. Perhaps it also explains why Vanderbilt is now generally recognized as one of the great medical schools of this country.

Medical Mussolini.

Those who admire the editor of the *Journal of the American Medical Association* will be horrified at Morris A. Beale's account under this title of the character and demeanor of a well-known medical figure. The medical profession should be warned against wasting its time seeking his portrait here. We do not know what is to become of the serious charges made in the book, but we venture to say that a stultifying silence is all they deserve.

The 54th Meeting of the A.A.P.

The president's address opened the American Association of Physicians meeting in Atlantic City with a plea for a therapeutic housecleaning, emphasizing the obvious point that it is more difficult to get rid of useless drugs than it is to introduce new ones.

George Baehr showed that it was apparently possible to "cure" syphilis by massive intravenous doses of arsphenamine given by the drip method over a period of five days at the rate of a gram a day.

Herrman Blumgart demonstrated that digitalis does not ordinarily increase pre-existing partial heart block, and in the discussion that followed it was pointed out that Stokes-Adams' disease itself is usually not a contraindication to digitalis therapy.

Albert Snell, discussing the absorption and utilization of Vitamin K in hæmorrhagic disease, showed that Vitamin K must be in the diet, that the intestinal surface must be intact, that bile must be present for its absorption, that prothrombin, to the formation of which this vitamin is essential, is formed in the liver, and that damage of the liver prevents the utilization of ingested Vitamin K.

Cyrus Sturgis, commenting upon 150 pernicious anemia deaths, related only 7 per cent of them to actual anemia, and showed that one-half of them had died from unrelated causes. Although the expectancy of life has been greatly prolonged by the newer parenteral administration of liver extract, death still comes to those in this group earlier than to the average person.

Henry Christian showed that experimentally the flow of blood in human kidneys was not retarded by renal sclerosis, and that in the presence of arteriosclerosis extrarenal atheroma was more frequent than renal atheroma.

B. S. Oppenheimer commented upon the few isolated cases of unilateral renal disease associated with hypertension, in which nephrectomy had been therapeutically effective, and reported out of 5,000 autopsy protocols eighteen cases in which unilateral vascular narrowing had been associated with hypertension, an incidence of 85 per cent.

A. E. Cohn discussed essential hypertension and diseases of the kidney, and the consensus of opinion seemed to be that whereas the Goldblatt method undoubtedly produces hypertension with astonishing regularity, narrowing of the arterioles as well as of the larger vessels must also be evaluated and further investigation pursued before the results of animal experimentation can be profitably applied to an understanding of hypertension in man.

Francis Rackemann, in discussing the relation of asthma and periarteritis nodosa, suggested a diagnostic triad of pain and numbness in extremities, eosinophilia and asthma. The combination was discovered in 10 per cent of the 200 cases of periarteritis nodosa on record.

John Paul presented evidence to show that the skin and mouth rather than the nose are portals of entrance of the virus of poliomyelitis. He emphasized the frequency with which the virus may be recovered from the stool and the importance of this fact in the clinical epidemiology of the disease.

Hobart Reiman called attention to a recent outbreak of an acute respiratory infection occurring in several parts of this country eventuating in an atypical pneumonia, which, although it is probably a virus disease and has some of the earmarks of influenza, was nevertheless clinically, culturally and serologically different from it.

Alphonse Dochez, in commenting upon the same disease observed in New York, emphasized its extreme communicability, its fourteen to eighteen day incubation period, its polynuclear leukocytosis, its slow pulse, tendency to relapse, ten day to ten week duration, low mortality, and virus type of lung pathology strikingly resembling psitticosis. The disease may closely simulate typhoid in its early manifestations.

Francis Blake reported his experience with sulfapyridine in pneumococcal, streptococcal and staphylococcal infections. A general discussion of great interest ensued.

E. K. Marchall, agreeing that sulfapyridine was pharmacologically more active than sulfanilamide, presented evidence to show that in animals at least it might be a very toxic drug, the high percentage of vomiting which complicated its use being attributed to a central effect.

Burgess Gordon thought that mechanical factors, such as suction, created in the opposite pulmonary cavity were responsible for bilateral collections of pleural fluid after pneumothorax.

Paul White, discussing striking pulsations of the internal jugular vein observed in tricuspid valvular disease, called attention to the importance of ruling out arterial pulsations by pressure over the bulb. In the discussion that followed it was brought out that the pulsations which accompany right-sided failure are the first to disappear with improvement, that the long standing pulsations are of very long standing and that the patients exhibiting them are relatively comfortable. A peculiar greenish color of the skin, a component of jaundice and cyanosis, was referred to as a sign of valuable diagnostic importance.

Frank Wilson showed electrocardiographic tracings with prominent S deflections and with low S.T. takeoffs in Leads II and III accompanying anginal attacks, which were relievable by nitroglycerine and were precipitated by smoking tobacco.

William Kerr advocated the use of an elastic abdominal support in anginal patients with large and pendulous abdomens, claiming that all but four of 200 such patients so treated remained pain-free with-

out other therapeutic measures. He explained the efficacy of the belt by stating that it increased the diaphragmatic excursions and improved the efficiency of the cardiac output.

Henry Christian emphasized the fact that many measures were available and successful in the management of patients with angina pectoris and urged the trial of one after another until a successful method was discovered. Among the changes which experimentally follow temporary occlusions of the coronaries, Baird Hastings showed that extracellular edema (10 per cent) might be one. Among the drugs capable of altering induced anoxemia in patients with coronary sclerosis, according to Robert Levy, aminophyllin was shown to increase the volume output of the heart 25 to 35 per cent. In spite of individual differences in the effect noted, toxic manifestations were rare.

Elliott Joslin, describing the so-called neuritis of diabetes as a neuropathy of central, rather than peripheral origin, and of metabolic rather than of inflammatory nature, stressed the incidence of high spinal fluid total proteins and the value of this finding in diagnosis. He thus added another to the already known causes of increased protein in the spinal fluid.

Franklin White studied 300 cases of jaundice from the standpoint of diagnostic error and concluded that on the whole he and his Boston confreres were correct 94 times out of 100, his chief error being in those cases due to carcinoma of the liver. He felt that functional tests were useful chiefly in following the progress of the disease and in reaching a decision relative to surgery. William Stroud discussed the possible relationship between gall-bladder disease and cardiac disease, and whereas his statistical data were large he did not reach conclusions that were definitive or convincing.

Sulfapyridine in Pneumonia.

Altogether 721 cases of pneumonia treated by sulfapyridine were reported at the Atlantic City meeting of the American Association of Physicians, with the remarkably low mortality rate of from 7 to 10 per cent. Opinion on the efficacy of the new therapy was divided. Some hailed it with undisguised enthusiasm.

In Philadelphia 500 cases had been treated with it. In 100 of them no typable pneumococci could be found and the mortality was 10 per cent. In the typable 400 the mortality was 7 per cent. Type I carried the lowest mortality, Type III the highest. In forty-three instances bacteriemia was demonstrated with a mortality of 22 per cent.

From Montreal an 8.8 per cent mortality was reported in sixty-eight cases, and from New Haven two deaths (Type III) in fifty-six cases of lobar pneumonia. An initial dose of 2 gms. of sulfapyridine followed by 4 gms. every twenty-four hours for the first two or three days and by half that dose for the next two or three days was the suggested method of treatment. Intravenous administration of the sodium salt was reported upon, and the hitherto considered ideal 5 mgm. per 100 cc. concentration of the drug in the blood stream was questioned.

From Boston a note of caution was sounded in the observation that perhaps the mildness of the cases of pneumonias of last year largely explains the favorable results reported, and that the administration of so toxic an agent as sulfapyridine should be stopped as soon as possible, within forty-eight hours preferably. From New York it was countered that types of pneumonia are constant from year to year in their virulence and that variations in mortality rates are due to variations in the incidence of particular types, rather than to the change in mortality rates of particular types. A more prolonged use of sulfapyridine was suggested. The latter point of view was concurred in by those who had had an opportunity of observing this treatment in Baltimore.

One of the questions which naturally presents itself is whether or not the new drug therapy is superior to serum therapy and which should be given priority. In Montreal sulfapyridine is routinely used for the first twelve hours for pneumonia; if no improvement ensues, in suitable cases serum therapy is instituted. It should be pointed out that in the enthusiasm for sulfapyridine the great body of knowledge recently accumulated concerning the serum therapy of the disease must not be cast overboard too hastily. Both methods of treatment will undoubtedly be improved. In the present state of knowledge they should be used concurrently. One may succeed where the other fails and there is undoubted practicability in the combined employment of the two.

Department of Clinical and Medical Education of the Medical Society of Virginia

Internal Medicine.

ALEXANDRIA

Reports indicate that the postgraduate course offered in Alexandria during February and March was highly successful. The subjects of discussion and speakers were announced in a previous issue of the MONTHLY. The average attendance for the six meetings was twenty-four. The following doctors enrolled for the course:

Dr. Alfred Abramson	Dr. C. F. Kincheloe, Jr.
Dr. C. V. Amole	Dr. Virginia Lane
Dr. C. E. Arnette	Dr. H. A. Latané
Dr. F. I. Bloise	Dr. J. W. Love
Dr. Perry L. Boyer	Dr. J. C. McCluer
Dr. Wm. T. Burch	Dr. W. C. McNeill
Dr. R. J. Cahoon	Dr. C. MacRae
Dr. Charles Canada	Dr. J. P. Madigan
Dr. Wm. P. Caton	Dr. T. A. Moneymaker
Dr. H. G. Chissell	Dr. A. B. Moore
Dr. A. D. Daughton	Dr. S. B. Moore
Dr. M. D. Delaney	Dr. L. Powell
Dr. O. D. Durant	Dr. W. L. Schafer
Dr. Carson Lee Fifer	Dr. N. G. Schuman
Dr. J. A. Gooch	Dr. J. A. Simms
Dr. L. F. Hobbs	Dr. W. C. West
Dr. G. Hutto	Dr. W. B. Wilkins
Dr. W. H. Janney	Dr. W. C. Williams
Dr. C. E. Jenkins	Dr. H. D. Wolff, Jr.

MARTINSVILLE

The Course in Internal Medicine held at Martinsville during March and April was attended by the following doctors:

Dr. G. B. Dudley	Dr. M. H. Mund
Dr. W. B. Dudley	Dr. J. E. Richardson
Dr. D. L. Fleshman	Dr. A. W. Rucker
Dr. L. C. Haley	Dr. J. P. Scott
Dr. H. G. Hammond	Dr. J. A. Shackelford
Dr. W. G. Hardy	Dr. J. M. Shackelford
Dr. G. L. Jones	Dr. J. T. Shelburne
Dr. R. R. Lee	Dr. F. B. Teague
Dr. E. M. McDaniel	Dr. C. R. Titus
Dr. D. H. Mason	Dr. R. H. Walker

The Secretary of the Patrick-Henry Medical Society in reporting on the course states that "the course I feel was stimulating and beneficial to all those attending. I feel that the State Society is doing a very valuable piece of work in promoting these courses."

LYNCHBURG

In Lynchburg six meetings have thus far been held in the course which will extend through June 9. The attendance at each meeting has been from twenty to twenty-four doctors. A full report of this course will be made at its conclusion.

ARVONIA

At the request of the recently formed James River Medical Association a postgraduate course was begun at Arvonia on May 10. The following is the program:

WEDNESDAY, MAY 10. 8:00 P. M.
- Chronic Rheumatism. Dr. Oscar Swineford, Jr., University of Virginia Medical School.
- Gynecological Problems in Office Practice. Dr. Randolph H. Hoge, Medical College of Virginia.

WEDNESDAY, MAY 17. 8:00 P. M.
- Gall-Bladder Disease and Its Treatment. Dr. Staige D. Blackford, University of Virginia Medcal School.
- Urological Problems in Children. Dr. E. W. Kirby, University of Virginia Medical School.

WEDNESDAY, MAY 24. 8:00 P. M.
- Late Toxemias of Pregnancy. Dr. Tiffany Williams, University of Virginia Medical School.
- Allergic Problems of General Practice. Dr. Oscar Swineford, Jr.

WEDNESDAY, MAY 31. 8:00 P. M.
- Deficiency Diseases and Their Treatment. Dr. H. B. Mulholland, University of Virginia Medical School.
- Abdominal Pain in Children. Dr. W. W. Waddell, University of Virginia Medical School.

WEDNESDAY, JUNE 7. 8:00 P. M.
- Headaches. Dr. John M. Meredith, University of Virginia Medical School.
- Diarrhœas in Children. Dr. W. W. Waddell, University of Virginia Medical School.

St. Louis Exhibit.

A series of charts, maps and photographs describing the work of the Department of Clinical and Medical Education since its beginning was sent for exhibit at the meeting of the American Medical Association in St. Louis. Accompanying this were samples of lectures in obstetrics and pediatrics used by the postgraduate instructors and distributed to those

who attended the courses. Sample programs of past courses were included for free distribution. The Executive Secretary will be glad to have the reaction of Virginia doctors who saw the exhibit.

Medical School Clinics.

UNIVERSITY OF VIRGINIA

The twenty-third semiannual postgraduate clinic was held in the amphitheatre of the University of Virginia Medical School on Friday, May 5. The following Symposium on Vitamins constituted the program:

General Review of the Vitamins. Dr. H. B. Mulholland, University of Virginia.

Clinical Tests of Vitamin Deficiencies. Dr. H. D. Kruse, Milbank Memorial Fund, New York, N. Y.

Vitamin K in Newly-borns. Dr. W. W. Waddell, University of Virginia.

Vitamin D. Dr. L. T. Royster, University of Virginia.

Human Vitamin Requirements and Therapeutic Dosages. Dr. W. H. Sebrell, Division of Chemistry, U.S.P.H.S., Washington, D. C.

Pellagra (Illustrated with Color Moving Pictures). Dr. J. M. Ruffin, Duke University, Durham, N. C.

The program above was arranged by Dr. Staige D. Blackford, who was recently appointed Chairman of the Committee on Graduate Clinics to succeed Dr. L. T. Royster, who asked to be retired from this position which he has held since 1934.

The following doctors registered and attended the sessions:

Dr. J. B. Bailey, Keysville.
Dr. C. D. Bennett, Chatham.
Dr. P. L. Boyer, Alexandria.
Dr. O. K. Burnette, Culpeper.
Dr. Louis Butan, Abingdon.
Dr. F. L. Byers, Harrisonburg.
Dr. H. G. Byrd, Louisa.
Dr. G. C. Campbell, Staunton.
Dr. B. L. Carleton, Newport News.
Dr. W. E. Chapin, Richmond.
Dr. H. T. Chelf, Culpeper.
Dr. H. T. Chelf, Jr., Bramwell, W. Va.
Dr. Homer E. Clarke, Massie's Mill.
Dr. H. S. Daniel, Louisa.
Dr. E. D. Davis, Crozet.
Dr. C. O. Dearmont, White Post.
Dr. Frederick Delp, Pulaski.
Dr. E. B. Dovell, Unionville.
Dr. F. C. Downey, Edinburg.
Dr. Granville Eastham, Culpeper.
Dr. G. R. Elliott, Orange.
Dr. C. B. Fox, Monterey.
Dr. H. C. Hallum, Washington, D. C.
Dr. T. W. Hankins, Fordwick.
Dr. Mary Harley, Sweetbriar.
Dr. Percy Harris, Scottsville.
Dr. W. F. Hartman, Swoope.
Dr. L. C. Haynes, Mt. Jackson.
Dr. R. B. Hightower, Washington, D. C.
Dr. J. M. Holloway, Fredericksburg.
Dr. F. M. Horsley, Schuyler.
Dr. L. A. Houff, Clifton Forge.
Dr. J. F. Hubbard, Waynesboro.
Dr. J. M. Hurt, Blackstone.
Dr. Carroll Iden, Berryville.
Dr. N. B. Jeter, Covington.
Dr. C. P. Jones, Lexington.
Dr. J. Bolling Jones, Petersburg.
Dr. James King, Radford.
Dr. D. M. Kipps, Front Royal.
Dr. Anita Lotti, Charlottesville.
Dr. F. H. Lukin, Pamplin.
Dr. H. C. McCoy, Gordonsville.
Dr. John F. McGavock, Crozet.
Dr. Florence Mahoney, Staunton.
Dr. E. R. Martin, Newport News.
Dr. Ruth Mason-Grigg, Petersburg.
Dr. J. O. Mundy, Charlottesville.
Dr. J. A. Murphy, Washington, D. C.
Dr. W. I. Owens, Pulaski.
Dr. R. L. Page, Batesville.
Dr. T. E. Patteson, Ransons.
Dr. Marshall J. Payne, Staunton.
Dr. W. R. Payne, Newport News.
Dr. Charles W. Putney, Staunton.
Dr. B. F. Randolph, Arrington.
Dr. C. M. Rice, Sweetbriar.
Dr. Alex. Robertson, Staunton.
Dr. James H. Smith, Richmond.
Dr. P. S. Smith, Abingdon.
Dr. Frank Stafford, Blue Ridge Sanatorium.
Dr. Frank Tappan, Berryville.
Dr. J. F. Thaxton, Tye River.
Dr. Francis Thurman, Buena Vista.
Dr. W. E. Vermilya, Clifton Forge.
Dr. W. R. Warren, Woodberry Forest.
Dr. O. M. Weaver, State Colony.
Dr. H. F. White, Fishersville.
Dr. Leta J. White, Petersburg.
Dr. M. J. W. White, Luray.
Dr. F. J. Wright, Petersburg.
Dr. O. R. Yates, Suffolk.

MEDICAL COLLEGE OF VIRGINIA

Neuropsychiatry was the subject for the postgraduate seminar of the Medical College of Virginia, held on the morning of April 28. Discussions and demonstrations on Neurological Surgery were given in the afternoon. The program for this was published in the April issue of the MONTHLY.

Those who registered at these lectures are:

Dr. G. B. Barrow, Staunton.
Dr. W. I. Prichard, Staunton.
Dr. David Wilson, University of Virginia.

Dr. J. S. De Jarnette, Staunton.
Dr. J. L. Berkeley, Charleston, W. Va.
Dr. W. D. Hall, Raleigh, N. C.
Dr. J. F. Owen, Raleigh, N. C.
Dr. J. K. Hall, Richmond.
Dr. H. E. Jordan, University of Virginia.
Dr. H. B. Sanford, Richmond.
Dr. Roy K. Flannagan, Richmond.
Dr. M. Grove-Hagan, Richmond.
Dr. B. S. Clements, Matoaka, W. Va.
Dr. Mary Baughman, Richmond.
Dr. John B. Bullard, Richmond.
Dr. E. J. Moseley, Jr., Richmond.
Dr. M. S. Brent, Petersburg.
Dr. E. T. Terrell, Williamsburg.
Dr. L. T. Browning, Williamsburg.
Dr. J. F. Thaxton, Tye River.
Dr. L. H. Hoover, Clarksville.
Dr. and Mrs. J. B. Pettis, Staunton.
Dr. H. T. Hawkins, Waynesboro.
Dr. L. C. Liles, Raleigh, N. C.
Dr. T. M. Spessard, Norfolk.
Dr. R. L. Raiford, Franklin.
Dr. A. A. Wilson, Charleston, W. Va.
Dr. Z. A. Hurianek, Alexandria.
Dr. A. E. Turman, Richmond.
Dr. W. R. Tyson, Norfolk.

GEORGE B. ZEHMER,
Executive Secretary.

Proceedings of Societies

The Alexandria Medical Society,

At its meeting on May 11, elected Dr. Francis I. Bloise of that city as president for the coming year, and Dr. Henry A. Hornthal as vice-president. Dr. C. E. Arnette was re-elected secretary-treasurer. At this time, delegate and alternate were also elected to the State Society meeting in Richmond in October and Dr. Charles V. Amole and George M. Hutto were admitted to membership.

On May 31, the Society closed its activities until Fall with a banquet at the Lord Fairfax Country Club, at which time Dr. E. Novak, well known gynecologist of Baltimore, Md., was the guest speaker.

The Mid-Tidewater Medical Society

Met in Gloucester on April 25, with the president, Dr. J. R. Parker, of Providence Forge, presiding. The afternoon session was given over to a discussion of "Tuberculosis", with Drs. Dean Cole, Donald S. Daniel, and E. C. Harper, of Richmond, as guest speakers.

Dr. M. H. Harris, West Point, is secretary of this Society.

Richmond Academy of Medicine.

At the regular meeting of the Academy, held on May 9, Dr. Roy Donaldson McClure, Ford Hospital, Detroit, spoke on "Anoxia and What It Means to the Surgical Patient". Others on the program were Drs. William Bickers and William B. Porter, both of Richmond.

The Danville-Pittsylvania Academy of Medicine

Held its regular meeting at the Danville Golf Club on May 9. This took the form of a dinner in honor of Dr. C. W. Pritchett on the completion of fifty years of medical practice. Dr. E. H. Miller introduced Dr. Pritchett to whom he presented a silver loving cup. Dr. Pritchett then spoke on reminiscences of fifty years of medical practice.

Dr. E. E. Barksdale is President of the Academy.

S. C. HALL, JR., *Secretary.*

The Lynchburg Academy of Medicine

Held its regular meeting on May 1, with the president, Dr. S. E. Oglesby, presiding. Dr. John O. Hurt, Colony, was elected to membership. Dr. R. V. Funsten, Professor of Orthopedic Surgery, University of Virginia Hospital, presented a very instructive and practical paper on "Low Back Pain".

C. E. KEEFER, *Secretary-Treasurer.*

News Notes

Make Your Reservations for the State Medical Meeting.

The Local Committee of Arrangements for the Richmond meeting of the Medical Society of Virginia has been most active in preparing for the convention to be held here October 3, 4 and 5. Indications are that this will be a banner meeting and all members are urged to attend. Rates at the various hotels are as follows:

	One Person Single Room with Bath	Two Persons Twin Beds
John Marshall (Headquarters)	$3.50 to $5.00	$6.00 to $10.00
Jefferson	$3.00 to $6.00	$6.00 to $8.00
Richmond	$2.50 to $4.00	$4.50 to $7.00
Murphy's	$2.50 to $3.50	$4.00 to $6.00
Capitol	$2.00 to $2.50	$3.50 to $4.00

Any assistance will be gladly given by Dr. Wm. H. Higgins, Chairman of Hotels, 710-12 Medical Arts Bldg., Richmond.

Guest Speakers for the Annual Meeting.

In response to the demand of some of the members that there be a larger number of out-of-State speakers at the annual meetings of the Medical Society of Virginia, the Program Committee arranged for three this year, and the president, Dr. Alex. F. Robertson, has had acceptances from the following: Dr. Franklin M. Hanger, Jr., a native of Staunton and now associate professor of medicine at Columbia University in New York City; Dr. Mont R. Reid, a native of Fincastle and now professor of surgery at the University of Cincinnati; and Dr. Louis Hamman of Baltimore, who is also well known to Virginia doctors. The privilege of hearing these speakers will be an added attraction of this meeting.

American Medical Association.

At the annual meeting of the Association, held in St. Louis, May 15-19, Dr. Rock Sleyster, Wauwatosa, Wis., succeeded to the presidency, and Dr. Nathan B. Van Etten, New York, was named president-elect. Dr. Alphonse McMahon, St. Louis, was elected vice-president, and the following officers were re-elected: Dr. Olin West, Chicago, secretary and general manager; Dr. Herman L. Kretschmer, Chicago, treasurer; Dr. H. H. Shoulders, Nashville, speaker of the house of Delegates; and Dr. R. W. Fouts, Omaha, vice-speaker.

The 1940 meeting will be held in New York City, the 1941 meeting in Cleveland, and Atlantic City was chosen for the 1942 convention.

The Virginia Society of Ophthalmology and Oto-Laryngology

Held its annual meeting in Roanoke, May 6, with the president, Dr. C. T. St. Clair, of Bluefield, W. Va., presiding. There was an attendance of approximately seventy-five. Speakers on the program were: Dr. Daniel B. Kirby, New York; Dr. Edward A. Looper, Baltimore; Dr. E. T. Gatewood, Richmond; Dr. H. Grant Preston, Harrisonburg; Dr. F. H. McGovern, Danville; and Drs. H. S. Hedges and F. D. Woodward, Charlottesville.

Dr. Karl S. Blackwell, Richmond, was elected president; Dr. G. G. Hankins, Newport News, vice-president; and Dr. Mortimer H. Williams, Roanoke, re-elected secretary-treasurer. Members of the executive committee are Dr. St. Clair, the retiring president, Dr. M. H. Hood, Portsmouth, and Dr. E. W. Burton, Charlottesville.

The 1940 meeting will be held in Newport News in May.

The Virginia Pediatric Society

Held its annual clinical meeting at the University of Virginia on May 6, with an attendance of twenty-two members and several visitors. The following program was presented by University doctors: Effect of Vitamin K Concentrate on Prothrombin Time and Clotting Time in the Newly-Born with Special Reference to Unnatural Bleeding in the Newly-Born by Dr. DuPont Guerry, III; Erythroblastic Anemia of Cooley with A Case Report by Dr. McLemore Birdsong; Pseudo-Hemophilia with A Case Report by Dr. Lawrence T. Royster; and A Case of Aplastic Anemia with Recovery by Dr. A. S. Hurt. All papers were freely discussed. Luncheon at Farmington Country Club followed the scientific program.

Dr. W. W. Waddell, Jr., University, is President, and Dr. J. M. Bishop, Roanoke, Secretary-Treasurer.

Medical College of Virginia News.

Commencement exercises closing the one hundred

first session of the college will be held June 6. It is expected that 160 will be graduated at these exercises: sixty-four in medicine; thirty-one in dentistry; twenty-five in pharmacy; thirty-one in nursing, and two for the master of science degree. Dr. Otis W. Caldwell, General Secretary of the American Association for the Advancement of Science, will give the Commencement address.

The annual sermon will be preached at Monumental Church by Reverend George Ossman, the rector.

Monday, June 5, will be Alumni Day, and many alumni are expected for the various functions scheduled for that day.

Dr. Walter E. Vest of Huntington, West Virginia, will be given the honorary degree of Doctor of Science at the Commencement exercises.

Thirty-one medical graduates are expected to receive commissions as first lieutenants in the Medical Corps of the United States Army.

Dr. Harvey B. Haag, professor of pharmacology, Dr. Frank L. Apperly, professor of pathology, Dr. Ernst Fischer, associate professor of physiology and pharmacology; Dr. J. C. Forbes, associate professor of biochemistry, Dr. Rolland J. Main, Associate professor of physiology, and Dr. C. R. Spealman, instructor in physiology and pharmacology, attended the annual meeting of the Federation of Experimental Biology, which includes the societies of physiology, biological chemistry, pharmacology and pathology, at Toronto, April 26-29. Drs. Fischer, Spealman and Main gave papers during the sessions.

The John and Mary R. Markle Foundation of New York has made a grant of $3,000.00 for studies in liver poisoning in the department of biochemistry. The Dazian Foundation for Medical Research has also made a grant of $700.00 for research in preventive medicine. The college has received in bequests, gifts, and grants for the current session $2,023,024.00.

Dr. Harry Bear, dean of the school of dentistry, has been elected president of the American Association of Dental Schools.

Mr. Wortley F. Rudd, dean of the school of pharmacy, was recently made president-elect of the Virginia Academy of Science.

Dean Harry Bear of the school of dentistry and Dean Wortley F. Rudd of the school of pharmacy attended the meetings of the American Council on Education in Washington last week. Dean Bear was the official delegate from the American Association of Dental Schools and Dean Rudd from the American Association of Colleges of Pharmacy.

At the annual meeting of the Virginia Academy of Science in Danville, the first part of May, three papers were presented by members of the college faculty. Dr. J. C. Forbes, associate professor of biochemistry and Mr. E. L. Outhouse, assistant in chemistry, gave a paper on "Studies on the Mechanism of the Protective Action of Xanthine". Dr. Forbes and Mr. R. V. Bowers, a graduate student in chemistry, also presented a paper on "A Study of Enzymatic Hydrolysis". Mr. Robert F. McCrackan, associate professor of biochemistry, gave a paper on "A Three-in-One Type of Pipet".

News from University of Virginia, Department of Medicine.

Drs. C. C. Speidel and J. E. Kindred attended the meetings of the American Association of Anatomists in Boston from April 6 to 8. Dr. Speidel read a paper on The Adjustments of Cutaneous Nerve Endings During Growth, and Dr. Kindred read a paper on A Quantitative Study of the Histology of the Secondary Lymphoid Nodules of the Submaxillary Lymphoid Nodes of Twenty-Day Old Albino Rats.

On April 11, Dr. Tiffany J. Williams addressed the Danville Academy of Medicine on the subject of Hypertension Subsequent to Toxemias of Pregnancy.

Dr. Henry H. Faxon, of Boston, visited the Medical School on April 12.

Dr. Staige D. Blackford spoke before the Patrick Henry Postgraduate Clinic held in Martinsville on April 14. His subject was Gall-bladder Disease and Its Treatment.

Dr. Anderson Hilding, of Duluth, Minnesota, visited the Medical School on April 18.

At the meeting of the University of Virginia Medical Society on April 24, Dr. John M. Blackford, of Seattle, spoke on Peptic Ulcer.

The American Philosophical Society has awarded a grant of $400.00 to Dr. C. C. Speidel in aid of his cinephotomicrographic studies of living tissues.

Dr. George M. Lawson was elected President of the University of Virginia Medical Society for the coming year and Dr. Andrew D. Hart was elected Secretary.

On April 28, Dr. H. B. Mulholland addressed a Postgraduate Clinic in Lynchburg, under the auspices of the Division of Extension of the University of Virginia. He spoke on Diseases of the Thyroid, Parathyroid and Suprarenal Glands. On May 3, he spoke on Acidosis, Alkylosis and Dehydration, and on May 19 on Carbohydrate Metabolism.

Drs. H. S. Hedges and F. D. Woodward attended the meeting of the Virginia Society of Otolaryngologists and Ophthalmologists on May 6. Dr. Hedges presented a paper on The Treatment of Epithelioma at the Limbus of the Eye and Dr. Woodward showed motion pictures illustrating the surgical procedure of laryngectomy.

Dr. D. C. Wilson attended the meetings of the American Psychiatric Association in Chicago from May 8 to 11. He read a paper on The Results of Shock Therapy in the Treatment of Affective Disorders.

The School of Nursing held its commencement exercises in Cabell Hall on the afternoon of May 24.

Dr. Harvey E. Jordan, professor of histology and embryology, was awarded the President and Visitors' Research Prize at the annual meeting of the Virginia Chapter of Sigma Xi, held the latter part of May.

New York Polyclinic Medical School and Hospital News.

Dr. Walter C. Alvarez, Mayo Clinic, Rochester, Minn., read a paper on "The patient who doesn't get well in spite of much treatment" on Thursday, May 4.

The New York Polyclinic Medical School and Hospital is inaugurating a combined full time course in Urology, covering an academic year (8 months), on October 1, 1939. It will comprise instruction in pharmacology; physiology; embryology; biochemistry; bacteriology and pathology; practical work in surgical anatomy and urological operative procedures on the cadaver; regional and general anesthesia (cadaver); office gynecology; proctological diagnosis; the use of the ophthalmoscope; physical diagnosis; roentgenological interpretation; electrocardiographic interpretation; dermatology and syphilology; neurology; physical therapy; continuous instruction in cysto-endoscopic diagnosis and operative instrumental manipulation; operative surgical clinics; demonstrations in the operative instrumental management of bladder tumors and other vesical lesions as well as endoscopic prostatic resection.

News from Duke University Medical School.

Physicians and medical scientists appeared prominently on the program of the Duke University centennial celebration which closed recently. Throughout the year a series of symposia were held on the campus. In the symposium on medical problems two themes were stressed: "The Future of American Medicine," and "Diseases of Special Interest to Physicians in the Southern States."

Among the speakers were: Dr. A. W. Freeman, of Johns Hopkins University School of Medicine; Dr. George W. McCoy, of Louisiana State University School of Medicine; Dr. John Punnett Peters, of the Yale Medical School; Dr. Morris Fishbein, editor of the Journal of the American Medical Association; Dr. George H. Whipple, dean of the University of Rochester School of Medicine; Dr. William H. Sebrell, surgeon in the U. S. Public Health Service; Dr. Charles F. Craig, of Tulane University School of Medicine; Dr. R. W. A. Ochsner, also of Tulane; Dr. William G. MacCallum, of Johns Hopkins; Dr. Arthuro Lorenzo Carrion, of San Juan, P. R.; Dr. A. M. Snell, of the Mayo Foundation, and others.

Chief Surgeon, C. & O. Railway.

Dr. J. M. Emmett, Clifton Forge, who has been serving as assistant to Dr. W. T. Oppenhimer, chief surgeon of the Chesapeake and Ohio Railway, for some time, has been named chief surgeon and Dr. Oppenhimer has been named advisory chief surgeon. Dr. Emmett will also continue in charge of the hospital at Clifton Forge.

Dr. J. P. McNeil,

Formerly located at Dante, has located at Kingsport, Tenn., where he will limit his practice to diagnosis and internal medicine with special reference to cardiology. After leaving Dante, he took a year's work in internal medicine at the University of Pennsylvania Postgraduate School of Medicine and then studied cardiovascular diseases under Dr. Samuel A. Levine and Dr. Paul D. White, both of Boston.

Dr. Peple Honored.

The Authorities of St. Luke's Hospital, Richmond, with which Dr. W. Lowndes Peple has been associated since his graduation in 1897, honored him on the evening of May 16, by presenting his portrait to the Staff of McGuire Clinic. Dr. Stuart McGuire presided at the exercises which were held at the Richmond Academy of Medicine Building and followed by a social hour. Other speakers were Dr. Leigh Buckner of Roanoke, first interne at St. Luke's Hospital, Dr. J. Bolling Jones of Petersburg, Dr. R. L. Payne of Norfolk, and Dr. Hugh H. Trout of Roanoke. Dr. John Bell Williams, business manager of the Hospital, presented the portrait which which was accepted by Dr. James H. Smith. These talks were followed by a short speech of appreciation by Dr. Peple.

Lederle at the New York World's Fair.

In the Medicine and Public Health Building, New York World's Fair, Lederle Laboratories are sponsoring the scientific exhibits on Allergy and on Pneumonia, each exhibit being controlled by a committee of eminent specialists on these diseases.

The Pneumonia exhibit presents, pictorially, the best composite opinion of the medical profession on how a pneumonia case should be treated.

The second exhibit, on Allergy, tells, in changing dramatic sequences, three two-minute dramas of Allergy. By means of an animated question box and dioramas showing typical scenes in the doctor's office, a search for the offending allergic excitant in each of the three stories is conducted through information obtained by questions, scratch tests and an examination of the patient's family tree. An interesting part of the allergy exhibit is an illuminated transparency chart showing in full color, forty-eight of the most common allergic excitants.

Physicians visiting the New York World's Fair are entitled to exclusive privileges in the Professional Club in the same building. Admission is obtained by simple identification as a doctor, without charge, and is only available to physicians and their guests. Provision is made here for consultation with exhibit sponsors on technical questions.

Dr. John H. Hopkins,

Who has been studying at the New York Polyclinic Hospital for the past year has re-opened his offices in Lynchburg, at 1112 Church Street, and will limit his practice to Urology.

Ex-Internes of the Medical College of Virginia

Held their annual meeting at the College on April 27, at which time the following officers were elected: Dr. W. P. Barnes, president; Dr. Henry Spalding, vice-president; and Dr. Nathan Bloom, secretary-treasurer. All are from Richmond.

Virginia Academy of Science.

At the annual meeting of the Academy held in Danville, May 4-6, Dr. Ruskin Freer, Lynchburg, succeeded to the presidency, and Dr. W. F. Rudd, Richmond, was named president-elect. Dr. E. C. L. Miller, Richmond, continues as secretary-treasurer. The next meeting will be held in Lynchburg, May, 1940.

Dr. Joseph E. Barrett,

Former director of the Michigan State Hospital Commission, has been appointed clinical director of the Southwestern State Hospital at Marion, effective June 1. This is the second appointment of a clinical director in the Virginia State Hospitals, Dr. J. B. Pettis having been named for the Western State Hospital in March. In addition to Dr. Barrett's duties at Marion, he is to begin a survey of the entire field of extramural services, such as outpatient service and local mental hygiene clinics.

Governor, West Virginia Section, American College of Physicians.

Announcement is made that Dr. Albert H. Hoge of Bluefield has been appointed governor of the West Virginia Section, American College of Physicians, succeeding Dr. Walter E. Vest of Huntington, resigned. Both of these doctors have many friends in Virginia having graduated from medical colleges in this State.

Married.

Dr. William Edgar Waddell, of the class of '34, University of Virginia Medical School, and Miss Joan Thompson of St. Johns, Newfoundland, recently. Dr. Waddell has for the past two years been serving as resident surgeon on the staff of the Notre Dame Bay Memorial Hospital at Twillingate, Newfoundland. They expect to be in the States this summer and will be at Dr. Waddell's former home in Lexington, early in July.

The Neuropsychiatric Society of Virginia,

At its last meeting held in February, elected the following officers for the ensuing year: President,

Dr. Hugh C. Henry of Richmond; vice-president, Dr. Thos. N. Spessard of Norfolk; and secretary-treasurer, Dr. Edward H. Williams of Richmond. This organization has a membership of forty and meets three times a year. The next meeting will be on June 14, at 2:00 p.m. at the Cavalier Hotel, Virginia Beach. Neurological Clinics will be held by Dr. Frank H. Redwood and Dr. Thos. N. Spessard of Norfolk, and the following papers will be presented: Some Observations on Psychoanalytic Theory and Practice by invited guest, Dr. Lawrence F. Woolley, director of Sheppard and Enoch Pratt Hospital, Towson, Maryland; The Concept of Psychopathic Personality by Dr. Joseph R. Blalock of Marion; and Is Mental Disease on the Increase by Dr. O. B. Darden of Richmond. The scientific meeting will be followed by a smoker and dinner.

Dr. Carrington Williams,

Richmond, has been elected to membership in the American Surgical Association, which limits its membership to 175 surgeons throughout the United States and Canada.

Dr. Harry F. White,

Class of '08, former University College of Medicine, Richmond, has been promoted from Senior Surgeon to Medical Director in the U. S. Public Health Service.

The North Carolina Medical Society

Held its annual meeting, May 9-14, as a convention cruise to Bermuda, on board the *S. S. Queen of Bermuda.* Dr. William Allan, Charlotte, was installed as president and the following officers elected: president-elect, Dr. Hubert B. Haywood, Raleigh; vice-presidents, Dr. F. Webb Griffith, Asheville, and Dr. Frank C. Smith, Charlotte. Dr. T. W. M. Long, Roanoke Rapids, is secretary-treasurer.

The Virginia, Maryland and District of Columbia Medical Society

Held its Spring meeting in Alexandria, May 17, with the president, Dr. M. B. Hiden, Warrenton, presiding. The following officers were elected: president, Dr. S. A. Nichols, Clarksville, Md.; vice-president, Dr. J. E. Knight, Warrenton, Va.; and Drs. J. Rogers Young, A Magruder MacDonald, and Robert S. Lamb, all of Washington, re-elected as recording secretary, corresponding secretary, and treasurer, respectively.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Aaron, H. Our common ailment.
Abbott, M. E. Classified and annotated bibliography of Sir William Osler's publications.
Alcohol: Its action on the human organism.
Alexander, J. The collapse therapy of pulmonary tuberculosis.
Baggs, T. A. Where does America go from here?
Balme, H. Relief of Pain.
Bealle, M. A. Medical Mussolini.
Bean, R. B. The peopling of Virginia.
Belding & Marston. A textbook of medical bacteriology.
Brickel, A. C. J. Surgical treatment of hand and forearm.
Chambers, H. D. Yaws.
Cowdry, E. V. Problems of ageing.
Davis, A. A. Dysmenorrhoea.
Donnison, C. P. Civilization and disease.
Ford, F. R. Diseases of the nervous system in infancy, childhood and adolescence.
Forkner, C. E. Leukemia and allied disorders.
Garbedian, H. G. Albert Einstein; maker of universes.
Gorham & Ivy. General function of the gall-bladder from the evolutionary standpoint.
Gutheil, E. The language of a dream.
Hancock, G. C. A report on the occurrence of glass fragments in foods packed in glass containers.
Henderson & Gillespie. Textbook of psychiatry for students and practitioners.
Jerger, J. A. Doctor, here's your hat.
Kahn, R. L. Tissue immunity.
Kline, B. S. Microscopic slide precipitation tests for the diagnosis and exclusion of syphilis.
Levine, M. Practical otology.
Lewis, T. Research in medicine, and other addresses.
Little, C. C. Civilization against cancer.
McClendon, J. F. Iodine and the incidence of goiter.
McDowall, R. J. S. The control of the circulation of the blood.
Mayo, E. The human problems of an industrial civilization.
Med. Res. Council. Report on radium beam therapy research.
Med. Res. Council. Medical uses of radium.
Miller, R. H. Applied anatomy, functional and typographical.
Monier-Williams, G. W. Lead in food.
Morrison, F. B. Feeds and feeding.
Pearl, R. The natural history of population.
Peter, L. C. The extra-ocular muscles.
Propst, D. W. The patient is the unit of practice.
Robert, J. C. The tobacco kingdom.
Robey, W. H. Health at fifty.
Schilder, P. Psychotherapy.
Schleich, K. L. Those were good days.
Smith & Gault. Essentials of pathology.

Spurling, R. G. Practical neurological diagnosis.
Stone, E. L. The new-born infant.
Swift, E. H. A system of chemical analysis (qualitative and semi-quantitative) for the common elements.
Waln, N. Reaching for the stars.
White, J. C. The autonomic nervous system.
Wilbur, R. L. The march of medicine.
Yearbook of surgery. 1938.
Yearbook of obstetrics. 1938.
Yearbook of medicine. 1938.
Zinsser, H. *et al.* Immunity; principles and application in medicine and public health.

Dr. George A. Stover,

South Boston, received several broken ribs and cuts, the latter part of March, when a front tire blew out, throwing him from his car. He has recovered sufficiently to resume his work though his car was almost a total wreck.

Medical Care—Program of Welfare Council.

Dr. F. P. Fletcher, representative from the Medical Society of Virginia to the Virginia Welfare Council, advises that the Council will hold its annual program in connection with the Institute of Public Affairs at the University of Virginia on July 11. At this time, medical care in its broad aspects will be discussed. The Committee in charge of this program is composed of Dr. Belle Boone Beard, chairman, Mr. Thomas C. Boushall, Dr. Basil B. Jones, Dr. F. P. Fletcher, Dr. E. L. Fox, Dr. W. H. Stauffer, and Miss Claire McCarthy. Further information may be obtained upon inquiry to the Virginia Welfare Council, 803½ East Main Street, Richmond.

Physicians as Artists.

Mead Johnson and Company of Evansville, Indiana, has published a booklet, "Parergon", dealing with physicians as artists, in which occurs the following quotations:

"From time immemorial, medicine and art have been closely associated. The same skill that makes the surgeon's fingers deft with scalpel and ligature is at work in the beautiful examples of sculpture and carving shown in this book."

"* * * every physician is able to develop a sensitiveness to and an appreciation for fine art. He can also cultivate a hobby which if not one of the fine arts, is in the class of 'work by the side of work.' Dr. Charles A. Dana, who has always stressed the value of cultural medicine, has advised: 'Be a collector, for example, of stamps or automobiles, or old books, or neckties or pins; or find diversion in some collateral branch of science; the lore of birds, of fishing and shooting. Make a garden or cultivate shrubs and flowers. These kinds of activities will make your life happier and your professional character more attractive and effective.' "

A free copy of "Parergon" is available to any of our readers upon request sent the publishers.

Dr. Warren T. Vaughan,

Richmond, was elected President of the American Society for the Study of Allergy, at its recent meeting in St. Louis. He succeeds Dr. Harry L. Alexander of St. Louis.

American Life Convention.

The twenty-ninth annual meeting of the Medical Section of the American Life Convention will be held at The Homestead, Hot Springs, June 27-29. The program will include papers by outstanding men in the field of medicine, both from Canada and the United States. Dr. Ennion S. Williams, Medical Director of the Life Insurance Company of Virginia, Richmond, is scheduled to discuss a paper on Non-Venereal Disease of Genito-Urinary System to be presented by Dr. Joe Travenick of Nashville, Tenn.

Dr. A. L. Jones,

Formerly of Splashdam, has opened offices in Chilhowie where he will continue his practice.

Dr. Wright Clarkson,

Petersburg, attended the quarterly meeting of the Association for the Study of Neoplastic Diseases, held in Detroit in April. He is this year's president, and Dr. Rollin Stevens of Detroit, chairman for the meeting, is vice-president. A large number of surgeons, pathologists, radiologists and biochemists from all over America attended the meeting.

Dr. John T. R. Sweeney,

Richmond, was recently elected president of the Highland Park Citizens' Association for the coming year.

Dr. C. J. Andrews,

Norfolk, addressed the Brunswick County Women's Field Army of the American Society for the Control of Cancer at a meeting in Lawrenceville early in May.

The American Public Health Association

Has recently adopted five reports dealing with Educational Qualifications of Public Health Statistics, School Health Educators, Public Health En-

gineers, Sanitarians, and Sub-Professional Field Personnel in Sanitation. These reports are distributed free of charge in the hope that they will serve a useful purpose in raising the educational standards of professional public health personnel. Copies may be secured from the Book Service, American Public Health Association, 50 West 50th St., New York City.

Dr. H. J. Williams,

Class of '38, Medical College of Virginia, who has been interning at St. Luke's Hospital, Richmond, located at Brownsburg, June 1, for the general practice of medicine.

Pan-Pacific Surgical Association.

The Third Congress of the Pan-Pacific Surgical Association is to be held in Honolulu, September 15 to 28, 1939. An invitation is extended to all surgeons to meet with outstanding men from countries of the Pacific area, including Australia, New Zealand, China, Japan, Java, Canada, and the United States, for an interchange of surgical thought and for the purpose of bringing about better understanding through personal contact among the surgeons of these countries.

Dr. F. J. Pinkerton, Young Building, Honolulu, Hawaii, is secretary-treasurer of the Association.

American Board of Internal Medicine, Inc.

Written examinations for certification by the American Board of Internal Medicine will be held in various sections of the United States on the third Monday in October and the third Monday in February.

Formal application must be received by the Secretary before August 20, 1939, for the October 16, 1939, examination, and on or before January 1 for the February 19, 1940, examination.

Application forms may be obtained from Dr. William S. Middleton, Secretary-Treasurer, 1301 University Avenue, Madison, Wisconsin.

American Congress of Physical Therapy.

The eighteenth annual scientific and clinical session of the Congress will be held September 5-8, at the Hotel Pennsylvania, New York City. Preceding these sessions, the Congress will conduct an intensive instruction seminar in physical therapy for physicians and technicians—August 30 to September 2. The clinics which comprise half of the schedule make this course outstanding for its practical value, and, as in the past, outstanding clinicians and teachers will participate. Registration is limited to 100 and is by application only. For information concerning seminar and preliminary program of convention proper, address American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

300 X-ray Examinations per Hour.

H. Holfelder and F. Berner, in a recent issue of *Münchener medizinische Wochenschrift,* reported a new method of X-raying the chests of large groups cheaply and quickly which has been developed in Germany. It consists of photographing the fluoroscopic image on motion picture film. When developed, the strip of film is projected on a screen for interpretation. By this method two physicians, assisted by a crew of ten men, examined at the rate of 300 per hour, more than 10,000 men during a Nazi party celebration at Nüremberg. The device is not a substitute for the standard X-ray technique but is a means of "screening" and it promises the possibility of examining the whole nation.

Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

Wanted—

A young married physician, temperate, industrious, American, for general town and rural practice, to associate with and succeed older physician contemplating retirement. Give particulars. Address "Location", care this JOURNAL. (*Adv.*)

Work for Summer Wanted.

Young doctor, single, wishes general practice or contract work from July 1 to August 15. Graduate of McGill University with three years' hospital work. Address "Summer Work", care of the VIRGINIA MEDICAL MONTHLY. (*Adv.*)

Obituary Record

Dr. Pitt Edward Tucker,

Well-known physician at Buckingham for the past thirty-three years, died on April 28, after a short illness, though he had been in poor health for several

years. He was sixty-eight years of age and a graduate of the Medical College of Virginia in 1897. He was a member of the Medical Society of Virginia, of the staff of the Southside Hospital in Farmville, a trustee of State Teachers College in Radford, a Mason, and a member of the Buckingham County Ruritan Club. He served overseas with the rank of captain in Base Hospital No. 59, during the World War. His wife, a sister and three brothers survive him.

Dr. Millard Percy Doyle,

Prominent Norfolk physician, died May 8, following a heart attack. He was a native of Dinwiddie County and fifty-eight years of age. Dr. Doyle graduated from the Medical College of Virginia in 1907, following which he located in Norfolk. He had been active in civic affairs, having served as president of the Rotary Club, and president of the Florence Crittenden Training Home. He was also a Mason, a Shriner, and a Knight Templar. He had been a member of the Medical Society of Virginia since 1910. Wis wife and two sons survive him.

Dr. Jeffrey Neese Elder,

Hopewell, died May 11, following a long illness. He was a native of North Carolina and forty-nine years of age. Dr. Elder graduated from the Medical College of Virginia in 1913 and located for practice in Hopewell in 1915. He served overseas during the World War and upon his return was commissioned Captain. Dr. Elder resumed his practice but had to retire in 1928 because of illness resulting from being gassed during the War. He was first commander of the Hopewell American Legion, a charter member and one of the first officers of the Kiwanis Club, and had been a member of the Medical Society of Virginia since 1914. His wife and a daughter survive him. One of his brothers is Dr. D. L. Elder of Hopewell.

Testimonial to James Carroll Flippin, M.D., Sc.D., Dean, 1924-1939.

The Faculty of the Department of Medicine of the University of Virginia record their profound loss in the death on February 16, 1939, of there Dean and Professor of Internal Medicine, Dr. James Carroll Flippin.

Dr. Flippin was born in Lunenburg County, Va., on January 20, 1878. Following the completion of his preliminary education, he entered the University of Virginia and In 1901 received the degree of Doctor of Medicine. After a year of internship he returned to his Alma Mater and was for the remaining thirty-six years of his life continuously connected with the Medical Department. In a teaching capacity, he served successively as Demonstrator of Histology, Medical Biology, and Pathology; Adjunct Professor of Bacteriology; Adjunct, Associate, and Professor of Clinical Medicine, and Professor and head of the Department of Internal Medicine. He discharged in addition the duties of University Physician and director of the diagnostic laboratories from 1906 to 1915, and after 1924 those of Dean of the Medical Department.

During the later years of his life, Dr. Flippin was actively interested in organized medicine and held many positions of honor and responsibility, including that of president of the Medical Society of Virginia and delegate from that body to the American Medical Association, in which he was, during recent years, a member of the Council on Scientific Assembly. In both of these as well as in various local organizations he was an influential member and an active participant throughout his professional career. The Medical College of Virginia, in 1938, conferred on him the honorary degree of Doctor of Science as a testimonial to his achievements and to the cordial relations which had been fostered between the two medical schools of the State.

The Medical Department of the University of Virginia, during Dr. Flippin's tenure as Dean, made its greatest and most dramatic advances: the enrollment of students was increased to meet the growing demands for medical education; the faculty was enlarged to provide for a more diversified curriculum; the clinical staff was augmented to meet the calls of an ever-growing clientele; new buildings with teaching and research laboratories were constructed, and the facilities of the Hospital and Out-Patient Clinics were greatly expanded.

Dr. Flippin was a man of genial and kindly personality. He was tolerant of the views of others but he was firm in his official acts. His judgment was excellent; his advice was eagerly sought. As a physician he exemplified the highest traditions of the profession. Through long training in the fundamental sciences he laid a foundation for his career as teacher and practitioner and he was enabled thereby to advance diagnosis and therapy. In both, he achieved eminence; to both he brought the idealism of thoroughness and the richness of experience. He will be remembered by his fellow physicians for his skill in diagnosis and prognosis; by his patients for his kindly bedside manner and his inspiration of encouragement and hope; by his students for his profound sympathy with youth, his fairness in administering discipline, and his loyalty to his profession. In his death organized medicine has lost an interested and active member, medical education a judicious leader, and this Faculty a sincere friend.

It is resolved that this testimonial be spread on the minutes of the Faculty of the Department of Medicine of the University of Virginia, that it be published in the VIRGINIA MEDICAL MONTHLY, and that a copy be sent to the family.

L. T. ROYSTER
J. A. WADDELL
H. B. MULHOLLAND
Committee.

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Δ	0.56-0.61	0.56
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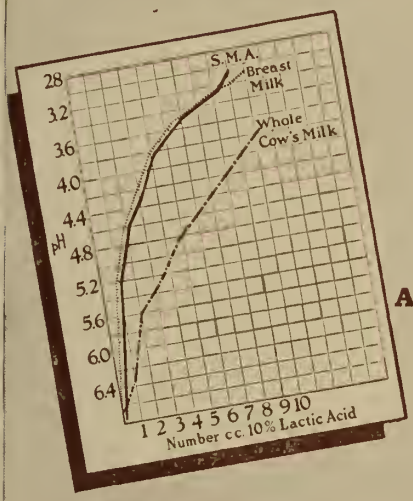

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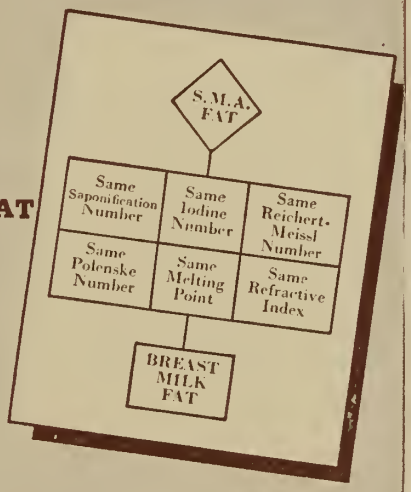

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CONTENTS

Tuberculosis in the Negro and Their Response to Therapy. C. Lydon Harrell, M. D., F. A. C. P., Medical Director, Norfolk, Va. 381

Tuberculous Tracheobronchitis. Walter L. Nalls, M. D., and Dean B. Cole, M. D., Richmond, Va. 387

The Surgical Management of Cholecystitis and Cholelithiasis. F. N. Thompson, M. D., and C. B. Courtney, M. D., Newport News, Va. 390

The Advantages of the Abdominal Approach to Hernia. Webster P. Barnes, M. D., Richmond, Va. 395

Carcinoma Corporis Uteri. Albert T. Walker, M. A., M. D., Portsmouth, Va. 398

Exanthem Subitum. Basil B. Jones, M. D., Richmond, Va. 401

Oligoseptic Treatment of Eye Infection. Leo I. Hallay, M. D., McClure, Va. 404

Neo-Arsphenamine in Herpes Zoster—Case Reports. R. Campbell Manson, M. D., Richmond, Va. 406

An Electric Incubator for Premature Infants. Edwin A. Harper, A. B., M. D., Lynchburg, Va. 408

The Erythrocyte Sedimentation Phenomenon—A Review. John P. Lynch, M. D., Richmond, Va. 409

Operative Obstetrics—Some Remarks. Walter McMann, M. D., Danville, Va. 412

Necessity of Routine Rectal Examinations—Case Reports. Benjamin W. Rawles, Jr., M. D., Richmond, Va. 416

Coronary Thrombosis—Factors in Immediate Prognosis. Bernard Lidman, M. D., Norfolk, Va. 417

Appendicitis—Its Diagnosis and Treatment. George H. Reese, M. D., Petersburg, Va. 420

MISCELLANEOUS 423

RICHMOND—CONVENTION CITY 426

PUBLIC HEALTH STATISTICS 429

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 430

TRUTH ABOUT MEDICINE 431

BOOK ANNOUNCEMENTS 432

EDITORIAL 433

PROCEEDINGS OF SOCIETIES 436

NEWS NOTES 437

OBITUARY RECORD 446

INDEX TO ADVERTISERS—Advertising Page 6

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TUBERCULOSIS IN THE NEGRO AND THEIR RESPONSE TO THERAPY.*

C. Lydon Harrell, M.D., F.A.C.P., Medical Director,
Tidewater Memorial Hospital,
Norfolk, Virginia.

A very small percentage of the medical profession is interested in treating tuberculosis; a still smaller percentage is interested in treating tuberculosis in the Negro. The two are so interwoven, tuberculosis in the Negro race and White race, that it is utterly impossible to separate them. The Negroes do our cooking, handle our food before and after cooking, handle our dishes, fondle and care for our children, handle our laundry, often having entire care of our little children over the week-end without any supervision, so why treat tuberculosis in your own bedroom and pay no heed to the disease in your kitchen and dining room? The tubercle bacillus is no respecter of race or creed.

The writer cannot speak as an authority on the subject as his experience is limited to twenty-two years' work in a clinic with Dr. Charles R. Grandy, where we handled only ambulant cases, though many of them were sick enough to be confined to their beds; also the few cases I have seen in consultation and observing the work of others. During this time a few ideas have been formed around which this paper will be written.

Tuberculosis is still the most dreaded disease among the Negro race, ranking seventh as the cause of death in the White race, it is rated second as the cause of death in the Negro. In 1936, in Virginia, the White rate was 49.3 per 100,000; the colored rate was 157.4—over three times as great. In the Northern states there is a greater disparity than this. In 1933 the White rate was 44. per 100,000, while in the Negro it was 232, almost five and one-half times as great. Why this difference? Is it that the Negro is more susceptible to tuberculosis than the White? Is it his environment and economic status, or has he not received the proper care and attention by the profession as a whole and by those who hold the purse strings? Probably all play their part. We will discuss them separately.

It is believed by many that the Negro has not the inherited immunity nor is he able to resist tuberculosis as the White man. Dr. Grandy claimed that the high death rate in the Negro was due to a racial lack of resistance, the result of his relatively short period of contact with the disease rather than to bodily weakness or manner of living.[1] Dr. Carter claimed that the Mulatto stood the disease better than the pure breds or blacks.[2] This has not been borne out by other observers. Dr. Proffitt states from his observation, the Mulattoes do not respond more readily to treatment than do the blacks.[3] Pinner and Kasper, studying the post-mortem findings in 303 Negroes, concluded that certain significant differences between the two races are shown to exist: "1. Greater frequency of miliary tuberculosis in the Negro, 37.3 per cent to 15.5 per cent in the Whites. 2. Greater frequency of haematogenous metastasis in the Negro—84.2 per cent to 40 per cent in the Whites. 3. Greater frequency of lymphatic metastasis in the Negro—66.8 per cent to 10.8 per cent in the Whites. From these discrepancies he concluded that infection tends to produce a high state of allergy in the Negro, but that he, unlike the White, does not readily acquire a state of increased resistance."[4]

It is a known fact that in a majority of instances the disease is far advanced when they are first seen by a physician, involving a half to an entire lung, often both lungs. The reason for this may be twofold: Negroes as a rules are strong and robust and do not notice or give up to minor ills and complaints

*Read before the Norfolk County Medical Society, November 21, 1938.

Also read before the Seaboard Medical Association of Virginia and North Carolina, at Greenville, N. C., December 6-8, 1938.

as do the Whites. It is only after he becomes real sick does he consult a doctor. Secondly, their economic status no doubt plays an important part, not having the money with which to pay a doctor and buy medicine keeps many away who otherwise would seek treatment. After they have been told they have tuberculosis in many instances there is nothing they can do about it. They have nothing saved up, their insurance is no good, as insurance companies do not pay for tuberculosis. They keep going as long as they are able to go then seek the aid of a clinic or charitable organization. An interesting observation on the Negro, often the X-ray findings are out of all proportion to the physical findings. Dr. P. P. McCain states that less than 10 per cent in the Negro are recognized in the minimal or curable stage.[5]

Dr. J. A. Proffitt states that more than 70 per cent of the patients entering Piedmont Sanatorium are far advanced cases. He feels that their economic status is more important than a lack of immunity or lowered resistance.[3]

We have admitted in The Tidewater Memorial Hospital since December 27, 1937, to October 10, 1938, forty-one Negro patients, of whom twenty-two have died. Two patients died within two days after entering the hospital, the longest lived 196 days. The average of the twenty-two cases was sixty-two days. The cases I see in consultation are about 95 per cent far advanced and 75 per cent hopeless. This gives one an idea of the type of case seeking institutional care.

Environment

Environment plays an important part both in the morbidity and mortality of any disease, most especially in tuberculosis in the Negro, with its social contact, poor housing, houses poorly constructed and too small, necessitating in many instances for the entire family to sleep in one or two rooms, windows closed tight and heads under the cover in order to keep warm. "The writer has seen this on numerous occasions during his first years in practice, doing inspection work for the Metropolitan Life Insurance Company." Poor and insufficient food and clothing, too much visiting among the sick with poor sanitation—all or anyone of these help to lower resistance and spread infection.

Russell B. Roth, in 1935, studied a group of 7,405 men at Camp Dix, and a greater percentage of Whites were found to have tuberculosis than Negroes, 7.5 per cent in Whites, to 5.6 per cent in the Negro. Yet over a fifteen-year period the mortality in the White was 0.24 per 1,000 population, while that in the Negro was 0.99 per 1,000, about four times as great. These men were supposed to be getting similar treatment under similar conditions.[5] This argument is more in favor of poor resistance rather than poor environment.

Dr. P. P. McCain, quoting from a "Study of Mortality in the Negroes in Cincinnati, for the Period 1929-1931" by the Public Health Federation:

"It reported that the Better Housing League of Cincinnati estimated that one-half of the Negro population in Cincinnati, was housed under bad conditions, one-fourth under fair, and one-fourth under good conditions. In the population classed as badly housed, the Negro tuberculosis death rate averaged 500 per 100,000; for those housed under fair conditions the rate 250, and where good housing prevailed the rate was 93."[6]

This is an interesting study. I dare say that a similar condition exists in nearly every city in the country. What a challenge to get rid of the slums!

Has the Negro Gotten the Proper Care and Treatment?

In 1934 the deaths from tuberculosis among the Negro population in the U. S. amounted to 21,099. At the same time the number of beds set aside for the treatment of Negroes with tuberculosis amounted to only 3,334, a little less than seven patients to each bed. The National Tuberculosis Association recommends two beds per death, though they state that for Negroes, in whom the disease runs a relatively shorter course, one bed per death may be sufficient.[7] In the State of Virginia at the present time there are 167 state and 105 municipal beds, a total of 272 for the treatment of Negro patients. In 1933 there were 1,098 deaths in the State from tuberculosis among the Negro population; there were only 226 beds that year, a little less than five patients per bed. In the same year there were 936 White deaths from tuberculosis with 994 beds. Draw your own conclusions.

Virginia is not the only state lacking in facilities to cope with this great problem. There are many others just as lacking. In North Carolina there were 1,213 deaths among the Negro population in 1933 with only 222 beds, about five and one-half patients per bed. I understand their waiting list for admission to the State Sanatorium is over four months long. Are you surprised that 90 per cent are far advanced on entering the Sanatorium?

I admit that the State of Virginia has made wonderful progress in its fight against, and treatment of, tuberculosis. The death rate has been more than cut in half in the past twenty-five years but I always felt it was waging its chief fight from the wrong end. Our state Sanatoria were built primarily to take care of the minimal and early case of tuberculosis, leaving the advanced case to shift for themselves. They were not permitted to re-admit any cases, so long as there were new cases on the waiting list. There are many advantages and disadvantages to this which I will not attempt to discuss for lack of time. This left most of the advanced cases, the sputum positive cases, the very ones that spread the infection, at home to shift for themselves until in recent years the cities began to build local or community sanatoria to take care of the advanced cases and those unable for various reasons to gain admission to state sanatoria. There are four of these at the present time with a bed capacity of around 450, supported by the community plus twenty-seven cents per day per patient from state subsidy. There are thirty-three free beds for Negroes in Norfolk, seventy-six in Richmond, fifty at Piedmont, and they are hoping to build 100 next year. I feel we should have at least 500 free beds in the State as probably at least one-half of those who become ill are indigent patients.

The advanced case, the sputum positive case, is much more dangerous to the community so far as spreading the disease is concerned than the early case. I admit the advanced case, or real sick person, should be treated near home for numerous reasons, but he is just as much a care or responsibility of the State as an early case and all the burden should not be thrown on the community. The State should bear at least half the burden. The bulk of our advanced cases are among the Negroes and that is where we must concentrate our efforts if we are to conquer the disease. A well known health official once said, "If we were to blot tuberculosis out of the white race and leave the Negro to fight his own battles, within five years we would be back where we are today."

The State of Virginia, in my estimation, is spending too much for the treatment of tuberculosis in proportion for what they are spending to prevent tuberculosis. We should pay more attention to the advanced case and that applies especially to the Negro. Will the Negro take the cure and will he respond to treatment when offered?

Many have argued in the past that they will not take the cure and will not respond to treatment. More recent observers have changed that idea. Carter, in 1920, stated that the Negro will respond to treatment for tuberculosis.[2] Dr. John A. Proffitt, in a recent private correspondence, states that he has never considered the tuberculous Negro a hopeless proposition. "The response of the minimal and moderately advanced case to treatment is excellent and shows good response to collapse therapy."[3] Dr. McCain thinks the results obtained in the minimal and moderately advanced cases compare favorably with results in the White patients.[6] He is also getting good results from collapse therapy.

Dr. O. L. Ballard, colored, of Louisville, recently reported his results in a study of 226 Negro patients treated with some form of collapse therapy. 53.2 per cent were either quiescent or apparently arrested.[9] Dr. F. R. Trigg, colored, of our city, states that in minimal cases he has gotten good results from artificial pneumothorax in 71 per cent; in moderately advanced cases, 60 per cent.

The author's experience with pneumothorax in the Negro has been limited to refills in a few, all of whom did well. I have followed only three cases from the beginning of treatment; these refused sanatorium treatment and insisted on being at home.

A. M., a light Mulatto girl, age nineteen, broke down during her senior year at college. First seen in May 30, 1934, with advanced pulmonary tuberculosis involving about two-thirds of the left lung. T. 101; P. 118; W. 125½. Pneumothorax started immediately and continued until June, 1937. At this time she weighed 160 pounds and had been symptom free for nearly a year. She has remained well, teaching in the high school. Last seen June 14, 1938.

O. O., ginger-bread colored girl, age thirty-two, school teacher. First seen in May 16, 1936, when she was found to have an advanced case involving entire left lung; had been sick in bed six months when diagnosis was made. Weight 120. Pneumothorax started immediately; refused sanatorium treatment, and was handled at home. At the present time she is taking gas every two weeks. Weight went to 180 pounds. Had to be put on a reducing diet and thyroid. Has been symptom free for a year. Was told to go back to work any time she could get a job.

M. F., age twenty-four, dark ginger-bread colored school teacher, first seen September 13, 1937. Advanced case involving upper half of right lung—with cavity formation. Also had small lesion in left.

Pneumothorax started on September 14. She was kept in bed for six months, after which time she was symptom free. She had gone from 125 pounds to 160. In the spring of this year she returned to Wilmington, Delaware, where her husband was teaching, to continue her treatment.

Many of these cases become too fat. Whether this is due to physical inactivity, slowing up metabolism, or toxemia of the disease impairing the function of the thyroid. I do not know, but thyroid usually helps them.

If I were asked to classify the Negro with tuberculosis for treatment I would suggest two classes: the intelligent and less intelligent, and not into mulattoes and blacks. From the intelligent class comes the ones with higher incomes. They live on cleaner streets, in better homes, wear better clothes, have more and better food. They have less sickness as the result of better sanitation and better living conditions. They recognize symptoms of disease earlier and consult their physician. This class is willing to take advice and cooperate with the doctor. They respond to treatment almost, if not as well, as the White. The other, the less intelligent class, come in the low income bracket and make up the larger group. This group will require a great deal of thought and attention. Many of them are indigent and are at the mercies of clinics and charitable organizations.

WHAT IS THE ANSWER?

First—Economic. Second—Educational. Third—Early Diagnosis.

I shall not attempt to discuss the first except to say as their *economic status* improves the Negro will voluntarily improve his social standing by moving into better houses, buy more and better clothes and eat better food, have better working hours and more recreation. This, in turn, will help to build up their resistance to infection. There is very little we can do about this except to encourage employers to give them a helping hand, wherever and whenever possible.

Educational.—This can best be handled through the Negro physician and Negro nurse. The writer feels that tuberculosis in the Negro can be handled best by the Negro physician with our assistance. He knows their psychology and has a better sympathetic understanding of their problems. Then our education should begin with the Negro physician. First of all, he must have a place to work. A cabinet maker may have an abundance of material but without tools and a place to work he will never build a fine cabinet. Negro physicians, as a rule, do not have the proper place to work or a chance to get adequate training. After leaving college they should be encouraged in taking special training in clinics or tuberculosis sanatoria where they can be trained in making early diagnosis and taught how to properly care for a case. There should be hospitals or hospital wards in every city where Negro physicians may handle their own cases if they so desire. I think Piedmont Sanatorium, which admits only Negro patients, and is staffed by White physicians, should have a Negro interne. The Negro division of North Carolina Sanatorium has a White physician in charge but has a Negro resident physician and a Negro interne with excellent results, according to Dr. McCain. Give them a year's training in order that they may be better fitted to instruct and serve their people. We should be proud of the fact that Norfolk has in the Community Hospital an institution devoted entirely to the treatment of Negroes and staffed by Negro physicians, and that a plan is on foot to enlarge this institution and make it an A-1 Hospital. The bulk of the research work, planning and supervising, will have to be carried on by the Whites for a long time as they have better facilities and more money at their disposal. But a bulk of the private work and clinic work can and should be handled by the Negro physician, with our assistance. We should never refuse to consult with them and assist them in every way possible. It is our professional duty. I see no objection to the Negro physicians attending our scientific meetings and listening to the discussions. We have much they need. Why not supply that need?

An early diagnosis is most important in the successful handling of any disease but especially so in tuberculosis. We have heard of diagnostic clinics for years; they catch many of the school children and a few stragglers that voluntarily come to the clinics, but they do not get the bulk of the people. More drastic or systematic measures will have to be adopted. In February, 1933, the writer presented a resolution before the Tidewater Tuberculosis Hospital Association, that all servants, before going into homes where there were small children, should be required to present a certificate of health twice a year. This resolution was approved. It was later approved by the staffs of the Norfolk General Hospital, St. Vincent's Hospital and by our Commissioner of Health who also gave it some publicity in the daily

press. I do not believe it is being practiced to any great extent. I feel this should be encouraged as much as possible and it should extend to all food handlers. On the first thought, one would say that is a selfish move on the part of White people to cut some poor colored woman out of a job. That is true. It is selfish. We wish to protect our children from infection and re-infection as much as possible. But in the end the person seeking a job will be the beneficiary. It will force them to see a doctor when they otherwise would not. It would be the means of recognizing disease in an early stage, in the curative stage, where in many instances the condition would go undetected until it was too late. In other words, it will compel the people to keep themselves physically fit if they want a job as well as stop one of our most common sources of infection. We did it in typhoid fever, in malaria, small pox and yellow fever; why not tuberculosis.

In October of this year, at the meeting of the State Medical Society in Danville, the Committee on Child Welfare presented a resolution requesting the School Boards throughout the State to require each teacher in the elementary grades and kindergardens to present an X-ray picture of her chest once a year. This was approved and I hope it will be enforced throughout the State. It will be another means of making an early diagnosis on many of the school teachers; also it will break up another source of infection among the children in school.

At a recent meeting of the Southern Tuberculosis Conference held in Louisville, Dr. Paul B. Cornely, colored, of Washington, read a paper entitled, "The Tuberculosis Problem in the Negro Schools and Colleges," in which he advocated giving the tuberculin test to all students applying for admission in college, and that all reactors be X-rayed. He also reported the work done at Howard University under his supervision. For the school year 1937-38, 420 individuals were X-rayed. This group included 314 who gave a positive tuberculin reaction, 106 were not tested. In this group twenty-nine or 6.9 per cent showed infiltrations in the lungs, as demonstrated by the X-ray.[8]

In 1936 a survey was made with the high schools in Hampton and Phoebus, in which 1,055 children were given the tuberculin test. There were 353 reactors. There were 238 strongly positive reactors. All of this group were X-rayed. Dr. Parker, Dr. Grinnan and I made a physical examination of the 238. Eight cases were found positive to tuberculosis by X-ray and examination. One of these was a teacher. The total cost was a little over $1.00 per person.[9] Is it not worth it? The writer feels that if all the high school children and students on entering college could be given the tuberculin test and X-ray the reactors, many of our early cases would be detected that are now going on to advanced stage before a diagnosis is made.

It is at this stage during high school and college years that many of our boys and girls show their first adult form of tuberculous infection.

Once the cases are detected, provision should be made to take care of them. All positive cases should be isolated in a sanatorium if possible. Some one has estimated that every positive case of tuberculosis, up and about, comes in contact with at least twenty individuals a day. The average child can overcome a moderate amount of infection, but very few can stand constant re-infection. It is much more economical to take care of one case indefinitely than to have to treat the entire family later.

I wish to repeat that tuberculosis in the Negro is a responsibility of the departments of health and the medical profession. We should not try to shirk but shoulder our part of the burden. Free hospitalization should be furnished those who are unable to pay.

This burden should be borne partly by the community and partly by the State with Federal subsidy. Tuberculosis is a local, state and national problem, as these victims are constantly drifting from city to city and state to state. Consequently, the burden should not fall upon the locality entirely, but shared by the State and Federal government.

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800 Wainwright Building.

DISCUSSION

DR. NICHOLAS G. WILSON, Norfolk: In his excellent paper, Dr. Harrell has expressed some very practical ideas and valuable opinions, with most of which I heartily agree.

Whatever the ultimate cause or causes it is a fact that the death rate, from tuberculosis, of the American Negro far exceeds that of the white race. It is likewise a fact that, while during the past three or four decades the death rate from this disease, in both races, has markedly declined, the same proportional disparity continues or has increased. For example, in Norfolk, in 1907, the death rate from tuberculosis per 100,000 of population, was for the whites, 135, and for the colored 433,—a proportion of 1 to 3.2. In 1937, the corresponding rate was whites, 18.6, colored, 93.3—a proportion of 1 to 5.

In 1908, Dr. Charles R. Grandy, of Norfolk, whose studies of this problem received national recognition, expressed the opinion that this high proportional mortality among negroes was due to their environment. However, in 1924, after sixteen more years of study, during which time the general living conditions of the negroes in Norfolk had been greatly improved, he found the relative death rate higher and the actual decline much lower than among the whites. These observations led him to modify the opinion formed in 1908, and to attribute the high colored death rate more to an hereditary lack of resistance, than to environment. Like Dr. H. G. Carter, he frequently stated that the admixture of white blood increased this resistance, and his clinical records seemed to substantiate the opinion.

It is almost unanimously agreed that, in the negro, tuberculosis pursues a much more rapidly fatal course than in the white race, and there seems to be a fairly general opinion that the lung tissues of the former do not form fibroid tissue like those of the latter. However, in recent years, in our work in the Norfolk Antituberculosis League Clinic, we have noted that frequently, when colored tubercular patients can be removed from their environment of mass infection they do produce fibroid tissue to a satisfactory degree. If they are left with their old contacts from whom they receive frequent massive re-infections, they do not respond in this way. Their first infection, with the development of allergy, is not allowed time in which to produce relative immunity; therefore, they become hyperallergic, each new infection inducing more extensive breaking down of lung tissue until death ensues. Of course, this state of affairs is most commonly found among the indigent,—a class that, no matter how much slum clearance is done, will always be slummers unless their surviving children may be educated, until they desire something better. There is little doubt that there is a difference in the response of the tissues of the negro to the tubercle bacillus.

In 1933, at the Phipps Institute, Philadelphia, F. R. Everett conducted some carefully controlled post-mortem studies, and reported, in part, as follows:

(1) The anatomical characters of tuberculosis in the American negro differ widely from those of white people of the same community.

(2) Tuberculosis pursues a more rapidly fatal course in the negro than in white people,—widespread tuberculous pneumonia with rapid excavation is more frequent and formation of fibrous tissue is less conspicuous in the black than in the white.

(3) The childhood type of pulmonary tuberculosis with caseous tuberculosis of tracheobronchial lymph nodes occurs in nearly one-half of negro adults, but in only a small percentage of white adults who have died of pulmonary tuberculosis.

This report seems to confirm the opinion that lack of tissue resistance is the chief cause of the high colored death rate, but, as previously stated, there is evidence that reasonable segregation of cases of open tuberculosis enables those having minimal infection to attain a degree of immunity approximating that of the white race. I heartily agree with Dr. Harrell's remarks concerning the tragic need for more sanatorium beds. It is evident that here is a wonderful opportunity for a legitimate expenditure of Federal funds. Many of our cities maintain sanatoria wherein far advanced cases of tuberculosis among the indigent may be cared for, and it would appear very desirable that there should be such a sanatorium in each of the several districts of our State.

DR. ALBAN PAPINEAU, Plymouth, N. C.: Dr. Harrell has covered the subject admirably. I am glad to find that he places the economic and educational factors before early diagnosis—in order of importance. It is always a pleasure to diagnose tuberculosis early in the negro, but it is very discouraging if lack of funds prevents sanatorium treatment, and the patient is forced to remain at home, where he is likely to spread the disease, at the same time becoming a far advanced and hopeless case. Every county should have a small sanatorium where the far advanced case can be isolated, and those waiting to be admitted to a sanatorium can receive proper bed rest. In the colored home a tuberculosis patient cannot take the cure properly, and the small children and the neighbors are ever present. Colored patients who are able to pay their own expenses for cure are few and far between. County and state or federal aid are imperative.

The weak link in the chain in treating the colored patient with tuberculosis consists in delay in getting him to the sanatorium. Once there, the treatment is the same

as in the white patient, with practically as good results. At the present time at the State Sanatorium in North Carolina, there are 150 colored patients; seventy-eight of these receive unilateral pneumothorax, and an additional thirteen receive bilateral pneumothorax. Thus, two-thirds of the patients receive collapse therapy. Nine thoracoplasties with no fatalities have been done in the past ten months on colored patients. Two hundred and seven-four phrenicectomies have been done so far in negroes.

Doubtless you have heard that Dr. P. P. McCain is advocating a state sanatorium for Eastern North Carolina. This is greatly needed, but that alone will not repair the weak link in the chain, as I previously mentioned: money must be available to send indigent colored patients to the sanatorium, and see them through the cure.

TUBERCULOUS TRACHEOBRONCHITIS.

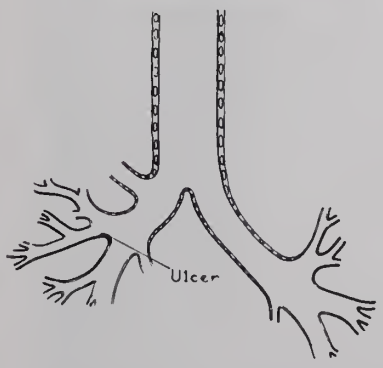
WALTER L. NALLS, M.D.,
and
DEAN B. COLE, M.D.,
Richmond, Virginia.

Although Eppinger described tuberculous lesions in the trachea and bronchi, seen at autopsy, before Koch had discovered the tubercle bacillus, there was but very little interest manifested in tuberculous tracheobronchitis until recent years. The classical papers by Eloesser in 1931 and 1932 did much to emphasize its importance and to stimulate interest in the condition. Almost simultaneously different groups made it the subject of investigation and in the past few years several excellent articles have appeared. To mention a few, the pathology has been described by Burgher, Littig, and Culp, and the clinical observations of Ballon, Kernan, Clerf, Sampson, Barnwell and Buckles have added much to our knowledge of the disease.

Case 1.
Fig. 1.—Thoracoplasty on left. Sputum still positive.

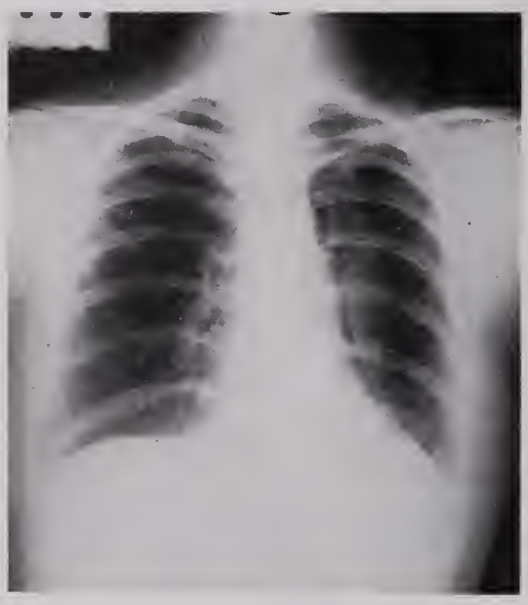
Formerly tuberculosis of the tracheobronchial tree was looked upon as an unusual complication of pulmonary tuberculosis encountered only at autopsy. There is every reason to believe that it occurred much more frequently than reports would indicate and failure to discover it in a greater number of cases has probably been due to the manner in which the lungs have been examined at routine autopsy. Unless the

Case 1.
Fig. 2.—Bronchoscopic appearance of small discrete tuberculous ulceration in right lower bronchus.



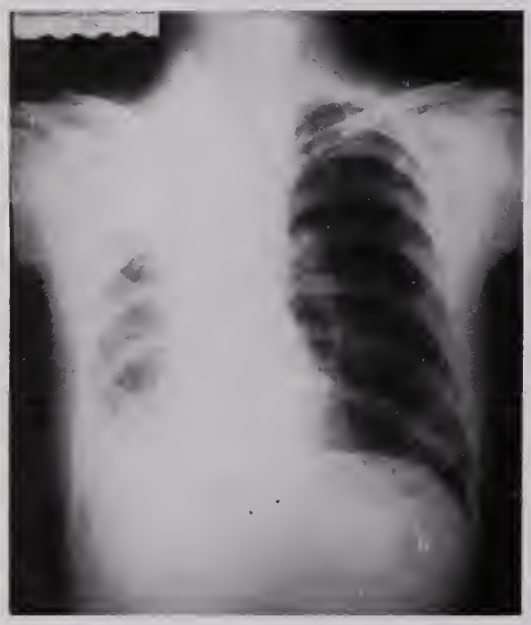
Case 1.
Fig. 3. — Diaphragmatic drawing of tracheobronchial tree showing location of ulceration.

lesion is kept in mind and searched for, and unless the trachea is opened and the bronchi dissected out as far as possible, and opened, these lesions will con-



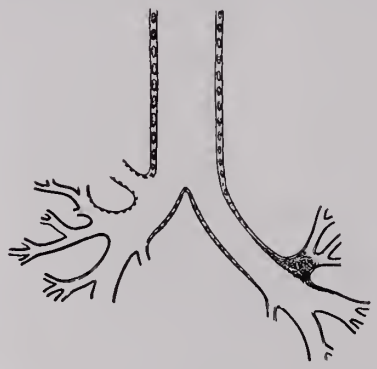
Case 2.
Fig. 1.—Minimal tuberculosis upper right lobe. Atelectasis of left upper lobe. Sputum positive.

tinue to be overlooked. This same thought obtains in our failure to recognize the condition clinically. It has been only in recent years that we have had a clear understanding of the morbid physiology pro-



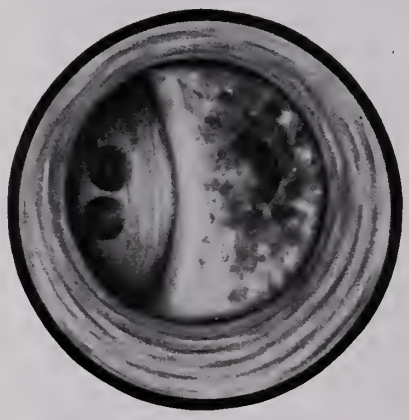
Case 3.
Fig. 1.—Tuberculosis of right lung with considerable atelectasis. Sputum positive.

duced by these endobronchial lesions, and consequently the disease has gone unrecognized. Now that the clinical manifestations are better understood the disease is being discovered with greater frequency by everyone interested. Sufficient data are not yet available to permit one to speak with finality regarding its incidence but certain reports seem to indicate that it occurs more commonly than formerly believed. Sampson and McIndoe performed routine broncho-



Case 2.
Fig. 2. — Schematic drawing showing tuberculous ulceration producing complete obstruction of left upper lobe bronchus.

scopy on all patients admitted to Michigan State Sanatorium for several months last year, and found tracheobronchial lesions in approximately 10 per cent of all cases. Warren, Hammond and Tuttle, performing bronchoscopy on a group of ninety patients

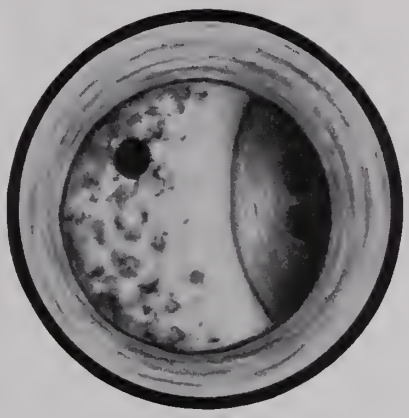


Case 3.
Fig. 2.—Bronchoscopic view showing large granulating tuberculous ulceration in right main bronchus producing obstruction to airways.

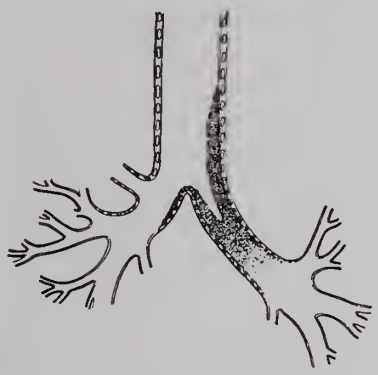
Case 3.
Fig. 3. — Schematic drawing showing location of tuberculous ulceration on right.

preparatory to thoracoplasty, found the condition in 13.3 per cent of these patients. It would appear then that an approximate incidence of from 10 to 15 per cent in the more advanced cases is not an exag-

Case 4.
Fig. 1.—Tuberculosis of left lung treated by pneumothorax. Sputum positive after closure of cavity.



Case 4.
Fig. 2.—Bronchoscopic view. Large tuberculous ulceration in left main bronchus producing complete obstruction.



Case 4.
Fig. 3. — Schematic drawing. The tuberculous ulceration has completely occluded the left main bronchus and extends up along the tracheal wall.

gerated estimate. The condition may be considered a complication of pulmonary tuberculosis and occurs more frequently in the advanced cases. Its occurrence has been reported in patients with minimal pulmonary tuberculosis and Barnwell has reported one case in which there was no evidence of pulmonary involvement. Thus, extensive pulmonary involvement is not requisite to endobronchial lesions.

The lesions commonly seen bronchoscopically are ulcerations, stenoses, and tuberculomata. Of these, ulcerations are by far the most common, and may be of two types: (1) the single, discrete ulcers, and (2) the granulating ulcers. The former are usually small and vary in depth depending upon the location in the bronchus. Their margins are well defined and are but little elevated above the surrounding mucosa, which appears relatively normal. The granulating ulcers are larger and may involve extensive areas of the tracheobronchial tree. Their margins are not clear cut but seem to fade out into the surrounding mucosa. Excessive granulations are usually present which, with the swollen and edematous adjacent mucous membrane, produce obstruction of the airway of varying degree. Stenosis may occur as a result of healing of ulcerations or without definite ulceration. Tuberculomata, though not common, may occur as globular, tumor-like masses, appearing not unlike new growths, protruding into the airway and producing obstruction.

Wheezing, rattling in the chest, and asthmatic attacks have been described as common symptoms of bronchial obstruction from any cause. It is not difficult to understand how these symptoms might be produced by tuberculous lesions in the bronchi, and are perhaps the most common encountered. Their occurrence should suggest the possibility of an endobronchial lesion, particularly if they persist, become more severe, and are not relieved by the usual remedies. Severe coughing occurring in paroxysms is frequently complained of and marked relief may follow the expectoration of thick, tenacious sputum or even bronchial plugs. The sputum, though not characteristic in appearance, often shows marked daily variation in quantity, and usually contains tubercle bacilli. Shortness of breath may occur and be out of proportion to the pulmonary involvement.

In addition to the findings of asthmatic rales on physical examination there often will be evidence of bronchial obstruction with resultant atelectasis. This

may be partial or complete and it is well to bear in mind that when the condition has progressed to complete obstruction the previously noted rales may disappear as air no longer is able to enter that portion of the lung. The only roentgenological evidence of importance is the occurrence of signs of atelectasis which may be lobar or lobular in distribution. In serial X-ray films small areas of lobular atelectasis may alternately appear and disappear, indicating a varying degree of obstruction in the bronchus draining the particular area.

While any of these symptoms or signs are suggestive of tuberculous tracheobronchitis, the final diagnosis rests upon visualization of the lesions through the bronchoscope. In patients having tuberculosis or suspected of having tuberculosis, should these phenomena appear, bronchoscopy should not be withheld as their presence is strong presumptive evidence of an endobronchial lesion. Routine bronchoscopy in tuberculous patients does not seem justified, but when there is evidence of a tracheobronchitis the presence of a pulmonary lesion does not constitute a contraindication. Since the wider use of the bronchoscope in pulmonary disease it has been fairly definitely established that little harm can come from bronchoscopy in tuberculous patients. Further, the possible good that may be accomplished more than offsets the possible dangers.

Evidence of bronchial obstruction, either partial or complete, furnishes the most common indication for bronchoscopy in the tuberculous patient. The finding of a positive sputum in the absence of sufficient demonstrable parenchymal disease to account for the bacilli in the sputum, or in the presence of what apparently is adequate control of the parenchymal lesion by collapse measures, likewise is strong indication for bronchoscopy. The same may also be said of pulmonary hemorrhage. Judging from the experience of others it seems advisable to perform bronchoscopy routinely on all candidates for thoracoplasty as a part of the pre-operative work-up. The finding of bronchial lesions may contraindicate thoracoplasty and thus avoid subjecting the patient to needless surgery.

Until recently it has been generally believed that there was no treatment worth while for these lesions and their presence forecast a grave prognosis. Deep X-ray therapy has been tried but its value is unimpressive. Hammond, Warren and Tuttle have recently reported their results in the treatment of a rather large series of cases. These results are encouraging, and others have also had similar experience. The usual method of treating the ulcerations has been the local application of silver nitrate and the surgical cautery, using a low coagulating current. Tuberculomata have been removed with bronchoscopic forceps, their bases being cauterized either with silver nitrate or the cautery. Healed stenotic lesions may be dilated when advisable.

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THE SURGICAL MANAGEMENT OF CHOLECYSTITIS AND CHOLELITHIASIS.*

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Gallbladder infection is a very common condition. It is the second most common intra-abdominal infection, being surpassed only by appendicitis. In approximately one-half of the cases of cholecystitis the appendix is also diseased, which supports the theory that gallbladder disease may be in part due to appendicitis.

Infection of the gallbladder usually occurs within the first two decades of life; however, at this time the symptoms manifested are those of vague "indigestion", and the real diagnosis is seldom made.

*Read before the Warwick County Medical Society in Newport News, Va., December 5, 1938.

Once the gallbladder is infected, it usually remains so, the acute stage passing into the chronic, so that in middle age gallstones frequently develop and cholecystitis is then manifested by gallstone colic. After the fifth decade the serious complications of cholelithiasis are most prone to occur, such as hydrops, empyema, gangrene, necrosis, perforation of the gallbladder with abscess formation or peritonitis. Acute hemorrhagic pancreatitis and intestinal obstruction are the more rare complications of gallstones, but probably the most fatal. Gallstones are found in about 70 per cent of the cases operated upon for gallbladder disease. Seventy-five per cent of the stones develop after the age of forty, and they are found to be present in 5 to 10 per cent of all autopsies. After the age of forty, they are four or five times more common in women; however under twenty, the incidence is about equal in both sexes.

Mode of Infection

The gallbladder may become infected in a number of ways:

1. Through the bloodstream, as in typhoid fever, pneumonia, septicemia.
2. Through the biliary tract, as in typhoid fever or in other intestinal diseases through the portal system drainage.
3. Through the lymphatics.
4. Through direct extension, as in ruptured gastric or duodenal ulcer with abscess formation.

Classification of Cholecystitis is as Follows

1. Acute catarrhal cholecystitis.
2. Chronic catarrhal cholecystitis.
3. Acute and chronic suppurative cholecystitis.
4. Gangrenous cholecystitis.
5. Cholecystitis obliterans.
6. Parasitic cholecystitis.
7. Malignant cholecystitis.

Gallbladder disease may be divided into three stages according to the symptoms:

1. *Catarrhal cholecystitis:* Usually develops before the age of twenty and is characterized by vague digestive symptoms such as flatulence, belching, heart-burn, sour stomach, bitter eructations and occasional spells of nausea and vomiting.

2. *Stage of Gallbladder Colic:* The attack usually occurs at night following a heavy meal, is sudden in onset, characterized by a sensation of fullness in the right upper quadrant with severe and often excrusiating pain radiating to the epigastrium, the back and shoulder blade along the right lower costal margin. The pain is usually attended by nausea and vomiting and occasionally relief is obtained by emesis; however, usually a hypodermic of morphia is required. It is most often seen in obese individuals between the ages of thirty-five and fifty, and is rather common in the last trimester of pregnancy. It is nearly always due to blockage of the cystic duct with a stone. Colic caused by acute cholecystitis is milder in character and is more prolonged, the soreness, pain and discomfort in the right upper quadrant sometimes lasting several days, accompanied by temperature elevation and leucocytosis. The onset of the attack as well as the subsidence is less abrupt than in cholelithiasis.

3. *Stage of Complications:* A previous history of gallstone colic can usually be obtained, the patient is usually over forty-five years of age and, when gangrenous or suppurative cholecystitis occurs, it is usually due to an impacted stone in the cystic duct. If the stone remains impacted for six to twelve hours, there is usually some necrosis or suppuration of the gallbladder and this is attended by marked nausea, vomiting and temperature elevation. The gallbladder at times becomes so distended that it may reach McBurney's point and cause confusion with appendicitis.

Diagnosis of Cholecystitis and Cholelithiasis

The diagnosis should be made early, but it has been the tendency for many of us to wait until gallbladder colic develops before it is considered. In order correctly to diagnose gallbladder infections in the early stage, the history and thorough physical examinations are extremely important. Often we are willing to treat digestive disorders symptomatically and indefinitely when cholecystography may reveal a non-functioning gallbladder and biliary calculi.

Cholecystography is the most important single procedure in making an accurate diagnosis. It is correct in 80 to 90 per cent of the cases. The dye may be given by mouth or intravenously. Serious reactions occasionally follow intravenous injections and it should never be given in this manner to patients with cardiac disease; neither should it be given to patients who are jaundiced, nor to patients with acute cholecystitis. There are several conditions which interfere with the gallbladder concentrating the dye, thus making it inaccurate and these are pregnancy, colitis, diarrhea, and occasionally acute

duodenal ulcer. The test must always be correlated with the clinical findings.

Duodenal drainage may be extremely helpful in making a diagnosis, for when the bile pigment and cholesterol crystals are found in fresh duodenal drainage, cholelithiasis will be present in 90 to 95 per cent of the cases, and when gallbladder epithelium is found, cholecystitis is present in over 90 per cent of the cases. Considerable experience is required, however, in examining the secretion properly.

A history of gallstone colic is very valuable in making the diagnosis and stones will be found in about 95 per cent of the cases. A negative history should not be relied upon. Quite often acute cholecystitis and gallstone colic will be atypical and must be differentiated from other conditions such as acute appendicitis, perforated gastric or duodenal ulcer, renal colic, cardiac disease, acute pancreatitis, acute pyelitis, gastric tabes and diaphragmatic pleurisy.

TREATMENT OF CHOLECYSTITIS AND CHOLELITHIASIS

As cholecystitis is almost always a permanent infection and progressive in character, it is in the majority of cases best treated surgically. A small percentage of the cases will be so mild in character that medical treatment may be satisfactory.

Until 1933 the general consensus of opinion among American surgeons was to wait on acute cholecystitis to subside provided the general condition improved and the temperature and leucocytosis subsided. Lahey staunchly advocated this routine, as he so strongly emphasized in his paper on the subject in 1932. After waiting two to four days, however, if the general condition did not improve and the temperature as well as the leucocytosis increased, he then advocated doing cholecystotomy followed by cholecystectomy two to four months later. There were a few surgeons, however, who did urge immediate operation prior to 1933 and some of these were Walton, Kerschner, and Erdmon. At the 1933 meeting of the American College of Surgeons, a symposium was held on the "Treatment of Acute Cholecystitis" and there was noted a definite increased tendency towards the immediate operation. Drs. Stone and Owings presented a paper advocating immediate operation on all cases of acute cholecystitis and advised cholecystectomy instead of cholecystotomy, stating that in their experience the mortality is lower, the patient is saved time, pain and expense. They pointed out that it seemed impossible to expect spontaneous recession of the process when the cystic duct is blocked and that the logical outcome in many of the cases will be rupture with localized abscess or generalized peritonitis. Drs. Judd and Phillips in their paper also subscribed to the plan of early operation, stating that there is less fear now in early surgery, which may be due to the fact that the infection is not always the cause of the condition and that many surgeons are operating early with comparative safety. On the other hand, they felt like each case was an individual one and that there were cases in which surgery should be postponed. They also advocated cholecystotomy in the extremely obese patient with a deep, inaccessible acutely inflamed gallbladder, instead of cholecystectomy. Dr. Waltman Walters believed in immediate surgery if the patient is seen early in the attack, reporting a series of seventy-six cases treated in this manner at the Mayo clinic, from January, 1934, to July, 1936, with a mortality rate of 3.9 per cent. In this series cholecystectomy was perfomed in sixty-five cases and cholecystotomy in eleven cases.

The treatment of cholelithiasis is always surgical as soon as the diagnosis is made, provided the patient is a fair risk. Even when the gallstones are found in a routine physical check up, their removal should be advised, provided the patient is a fair risk, for at this time the mortality is low and dangerous complications with high mortality rates will be avoided later on. When patients have had numerous attacks of gallstone colic, they have had also numerous attacks of cholecystitis, which in turn infects the biliary tree and often produces an ascending infection in the liver. In many cases due to repeated attacks of cholecystitis, the gallbladder wall is almost completely destroyed, causing dense pericholecystic adhesions and in this manner gravely interfering with the functioning of the stomach and duodenum.

Infection of the biliary tree not only predisposes to hepatic insufficiency but also to the formation of calculi. It is generally accepted that stones are formed in the hepatic and common ducts due to the presence of infection, in all probability. Lahey has had stones to form in the common duct in a few cases, five to ten years following cholecystectomy, at which time the common duct was thoroughly explored and irrigated with the removal of several calculi. Lahey reports that in 96 per cent of the cases of the common duct stones, stones are also

found in the gallbladder and in only 4 per cent of common duct stones has there been an absence of gallstones in the gallbladder.

If gallstones could be removed early, there would be less infection in the gallbladder, less infection in the biliary tree, fewer common duct stones, greater hepatic sufficiency, and a much lower mortality rate.

Quite often following cholecystectomy, stones are left behind in the common duct. Lahey contends that in 39 per cent of the cases stones in the common duct do not cause jaundice. In many instances they are not palpable, especially when they are located within the hepatic ducts. In some cases there is no dilatation or thickening. Prior to 1926 the common duct was explored in 12 per cent of the cases at the Lahey Clinic, and in 8 per cent of them stones were found. Since that time the duct has been opened in 38 per cent of the cases and stones discovered in one-half, or 19 per cent of the cases. Lahey has listed the following indications for exploring the common duct:

1. In patients who have been jaundiced.
2. When the duct is dilated.
3. When the gallbladder is markedly thickened or contracted.
4. When the head of the pancreas is thickened, for here stones may be present at the ampulla of Vater.

When the stones are left in the common duct, and secondary operation is required, the average mortality is 10 per cent.

While Lahey feels that routine exploration of the common bile duct does not alter the mortality rate, the general consensus of opinion is that there is a definite increase, which is especially noted in the obese patient or in the patient with hepatic insufficiency, which is so often present.

Quite often we are prone to think that colic following cholecystectomy is due to a stricture, adhesions, pylorospasm and mucus plugs, but in the vast majority of cases stones have been left in the common duct.

The subject of cholecystitis and cholelithiasis is not complete without discussing the treatment of "painless jaundice". In most of the cases, the jaundiced patient is a surgical case if catarrhal and hemolytic jaundice can be ruled out. Often, when jaundiced patients are explored, an inoperable carcinoma is found at the head of the pancreas, so a good rule to follow in these cases is "Courvoisier's Law" which is as follows:

If jaundice is present and the gallbladder is palpable, the jaundice is due to a malignancy at the head of the pancreas. If on the other hand the gallbladder is contracted and can not be felt, the jaundice is due to a calculus in the common duct. It is obvious that the rule is of great value only when the gallbladder is palpable through the abdominal wall.

A jaundiced patient is usually a poor risk because of the increased danger of hemorrhage, not only at operation but postoperatively, and also because in many cases there has been back pressure on the liver with a marked loss of hepatic sufficiency. When to operate on these patients is often a hard problem to decide. The safest rule as Dr. Waltman Walters has pointed out is to wait for the bile pigment retention in the blood to become stationary. If the patient is subjected to surgery when the blood bilirubin is rising, the risk is much greater, but when a plateau is reached the mortality is lowest. No jaundiced patient should be treated as an emergency. Their preoperative preparation must be adequate. Most surgeons now agree that the main objective is to increase liver function and this is done best by placing the patient on a high carbohydrate diet, administering glucose and saline intravenously and giving blood transfusions pre- and postoperatively. Calcium is now considered of very little value. There is considerable experimental work being done now on the use of vitamin "K" and bile in reducing the clotting time in jaundiced patients, and Walters has reported cases in which it has been of decided value. While strenuous preoperative preparation is always necessary in the presence of jaundice, it should never be neglected in any patient undergoing surgery for biliary tract disease, for in the majority of these cases the mortality is not in the gallbladder but is in the liver.

Selecting the best anaesthetic for each individual case is a great factor in keeping the mortality low in all gallbladder surgery, and in regard to this there is some disagreement among outstanding surgeons. Ether may cause marked liver cell necrosis if anoxemia is present in the liver, and quite often it is, due to a slowing of the vascular stream. It may then cause severe postoperative shock. Chloroform has long been discarded, due to its destructive action on the liver. Nitrous oxide and oxygen rarely ever render sufficient relaxation, so our best anaesthetic is probably spinal and, when there is some contra-

indication to this, local may be used. If necessary, it may be supplemented with gas. Spinal anaesthesia is used in the great majority of all cases of biliary tract surgery at the Lahey Clinic.

Over a period of slightly more than a year we have operated on thirteen cases either for cholecystitis, cholelithiasis or both at Riverside Hospital. The pathological report in eight instances or in 62 per cent, was cholecystitis with cholelithiasis. In four cases, or in 31 per cent, the report was chronic cholecystitis, while in one case, or 7 per cent, the pathological diagnosis was subacute cholecystitis with cholelithiasis. Nine of the cases gave a history of gallstone colic, and in each case gallstones were found. The youngest in the series was twenty-seven years, while the oldest was seventy, with an average of forty-three years. There were nine females, 69 per cent, and four males, 31 per cent. The predominating symptom in each case was pain or discomfort in the right upper quadrant, while a previous history of chronic dyspepsia was elicited in every case. In seven cases cholecystography was used to confirm the diagnosis, while in six cases the clinical picture and history only were relied upon. In three cases, or 23 per cent, jaundice was present, and in one of these cases calculi were removed from the common duct. In the other two cases of jaundice the duct was not explored, due to the patient's poor condition, and also because the common duct was not dilated and no stones were felt. In two instances, or in 15 per cent of the cases, surgery was carried out immediately, while in eleven cases, or 85 per cent, operation was delayed.

In 77 per cent, or ten cases, spinal anaesthesia was employed, procaine hydrochloride being used mostly. In the other three cases nitrous oxide, oxygen and ether were used. In one case the patient, who was a white, married female, was severely jaundiced, was seventy years of age, had chronic nephritis and a ten-year history of gallstone colic. She was treated pre-operatively for two weeks, transfusions being given, and she made an unexpected smooth convalescence following operation.

In another case the patient, a white, married female, age sixty-two, made a normal convalescence following cholecystectomy. Many stones were found in the gallbladder with no dilatation of the common duct and it was not explored. About three months later she was readmitted, jaundiced and having colic. It seemed probable that a stone had been left in the common bile duct, but she cleared up under symptomatic treatment and has been well since, no second operation being necessary. In this series there were no deaths and, although it is too soon to draw final conclusions, it has been possible to follow every case, all of which are now doing quite well.

One interesting case not included in the series because she was not operated upon, was that of a fifty-five-year-old white, married female, weighing 202 pounds, who was admitted on July 7, 1938, in diabetic coma. She had been seen nine hours previous to admission by the referring physician who had to use morphine to relieve an attack of severe pain under the right costal margin. After this the patient did not awaken and, when admitted to the hospital, was in profound diabetic coma, the blood sugar being markedly increased and the urine four plus sugar with much acetone. After forty-eight hours the patient became markedly jaundiced, the icteric index reaching 140 and the previous suspicion of stone in the common duct seemed more correct. The gallbladder had been removed twenty-five years ago. She was treated pre-operatively by insulin, fluids, intravenously and transfusions of whole citrated blood, and was carried to the operating room on July 13 for exploration of the common duct. After spinal anaesthesia, the blood pressure dropped so low that it could not be obtained and the respiratory rate became so markedly depressed that surgery was deferred. Following this she made a hasty convalescence, the jaundice gradually diminished, and the general condition steadily improved. She was discharged on July 27 and has had no recurrent colic or diabetic coma. It seems logical to assume that in this case the stone was passed and whether the spinal anaesthesia could have been a factor by producing relaxation will always be a question.

In summarizing, it should be noted that gallbladder disease is one which occurs early in life, characterized by gallstone colic in middle age and dangerous complications most often after the fifth decade. The diagnosis in most cases can be made early, cholecystography being the most valuable aid while duodenal drainage is of value. The general consensus of opinion concerning immediate and delayed surgery in acute cholecystitis is still a point of debate, but there is a definite trend towards immediate surgery, many excellent papers showing that

it is comparatively safe. Cholecystotomy is still useful in many cases and each case should be treated individually. Cholelithiasis should be treated surgically if there are no strong contra-indications to surgery. The common duct should be explored more often, especially when it is dilated or there is jaundice. The patient's condition, however, must always be fairly considered. Jaundice must not be treated as an emergency and the patient should always be treated adequately, pre-operatively to increase liver function. Spinal anaesthesia is the best whenever it can be used, as it produces optimum relaxation and the least shock. In the extremely toxic patient or the elderly patient, local anaesthesia with gas inhalation as a supplement will be found less dangerous.

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THE ADVANTAGES OF THE ABDOMINAL APPROACH TO HERNIA.*

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To those who were privileged to work with the late Dr. G. Paul LaRoque, my remarks may seem presumptive, but to those who were not his former associates I hope to be able in this brief paper to show why the LaRoque operation for inguinal hernia should be more widely used. It is my belief that the operation has never been appreciated as it should be, and that this is because it has generally been misunderstood even by surgeons, the approach as you will see differing entirely from that of the Bassini operation.

It was my privilege to work with Dr. LaRoque for five years, during which time the subject was rewritten by him and many new drawings made which are now shown in all of the leading textbooks on general surgery. Many of his concise comments on the subject are still fresh in my mind as is doubtless true with some of you. If I should seem a bit too enthusiastic on a subject which many men consider closed, it is because I was made to understand it by the author and have an ever-increasing conviction that his operation is far superior to any as yet brought forward for the cure of inguinal hernia.

Briefly, the operation consists of an incision slightly higher than that usually made for inguinal hernia, opening the aponeurosis of the external oblique, then a muscle splitting incision through the transversalis and interior oblique muscles about one inch above their lower border. The peritoneum is then opened and the ring or hernia-bearing portion of the peritoneum is excised as far away from the hernia orifice as is consistent with peritoneal suture without tearing or undue tension. The wound is then closed as in any McBurney incision for appendicitis—for in reality we actually have made a low McBurney incision. This procedure has nothing to do with the type of canal repair and the operator is free to vary this according to his own pet methods. Personally I do the Bassini repair, using chromic catgut for those herniae with small necks and an autogenous living fascial suture (obtained from the inner side of the slit made through the aponeurosis of the external oblique fascia) for the correction of the muscular defects found in those with large necks.

This operation, which consists of excising the "ring bearing" portion of peritoneum, is based on the saccular conception of hernia which is now universal. At this time I want to stress what a hernia is. Quoting LaRoque, "it is a pouch of peritoneum which contains or is capable of containing a portion of an abdominal viscus." Therefore, when we are examining for hernia we are trying to see if something descends or tries to descend—"the impulse" is what we are looking for. It is not always safe to say that a patient does not have a hernia; while we may be unable to demonstrate it at the time, we must bear in mind that violent straining, lifting, etc., may have demon-

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strated this condition before, and without that same increased intra-abdominal pressure, we may make a diagnostic error.

It is in this type of case that we are apt to be misled in the belief—long a popular one—that trauma or suddenly lifting something heavy causes a hernia. Having operated upon a few of these so-called "traumatic herniae" within forty-eight hours after their first appearance, and having failed to find any evidence of a peritoneal tear, contusion, ecchymosis or congestion, or indeed anything not found when operating for "non-traumatic hernia", I am forced to agree with LaRoque that there is no such condition as traumatic inguinal hernia. Since the laws of this State permit of compensation for "traumatic hernia", it does not behoove one to argue this belief too openly, however.

In support of this contention, allow me to illustrate by saying that if the testicle is in the bottom of the sac, everybody agrees that it is an infantile type of hernia. If, however, that sac does not go as low as the testicle, most surgeons will call it an acquired hernia. Is this reasonable, or is it merely accepting the ideas of our predecessors and thereby closing the subject to further thought? If one is hernia-minded he will look for hernia when operating for other things, and in a short while his conception will change. Many patients are turned down by the medical boards of the larger companies merely because of a dilated external inguinal ring, which is not enough; there must be an "impulse" or something descending, else there can be no demonstrable hernia. I have had to operate on a number of these cases in order for them to obtain work. If the doctor who had refused to accept the applicant had been present, I could have at least tried to change his conception of hernia, so that in future this type of case might not be subjected to unnecessary surgery in order to provide for his family.

Since the days of Halsted's and Bassini's monumental work on hernia, all thought on the subject has been directed to the methods of canal repair and in spite of the applications of all of these ideas and of varying suture materials the old operation carries with it a recurrence rate from 9 per cent to 12 per cent. These figures are taken from the *Annals of Surgery,* September, 1937, in which a symposium on hernia was presented by several of the best known surgeons of the North. Are we content with such a high recurrence rate, and what is the percentage of failure after the LaRoque method? I am sorry I cannot answer this question. Several hundred cases are now being reviewed by a co-worker and I await those results with the keenest interest. My own series is too small for conclusions. I am aware of but one failure, however. Many of these were done at the Medical College of Virginia hospitals and at the Sheltering Arms Hospital. Should failures have occurred, I think it a safe assumption that those patients would have had to enter again these institutions for recurrent hernia. Upon frequent inquiry of the house surgeons at the College hospitals I am advised that as yet none of them have returned. Many of the cases now being studied are old cases of mine. More than 1,000 cases are being followed up; the results will be interesting. LaRoque had made a check on many of his earlier cases and said, "I will not give you the result lest I myself be misled and branded as a liar by my co-workers."

Recurrent herniae done by this method reveal a few interesting facts. The most common is the finding of the original hernial orifice and a varying amount of true peritoneal sac with the bottom of the new sac made up of false peritoneum, indicating that the sac had not been completely removed at the first operation.

Then there are those cases of sliding hernia (unusual and rare type) in which the protrusion is caused by the cecum or sigmoid being extraperitoneally. Such a condition can never be satisfactorily handled by any other method, since the problem is to develop a sling by a plastic repair of the peritoneum in such a way as to force the cecum or sigmoid to hang freely intraperitoneally rather than to slide downward post-peritoneally. I have seen three cases of recurrence in which a perfectly formed but never disturbed hernia sac was found. Apparently the patient had originally a bifid or pantaloon type of hernia, one leg of which had been left undisturbed. Such a thing could not happen when removing the sac from above. The only way for recurrence to take place in this operation is either for the wound to become infected, or for the suture material to fail to hold, or for too early absorption or tearing out incident to violent coughing, etc.

The saccular conception, while correct for indirect hernia, does not take into consideration direct inguinal hernia. The latter has no orifice or true sac and is an acquired hernia, the problem of cure being much more difficult. It may be likened to

a blowout in a tire—a bulging of the peritoneum because of a defect in the abdominal wall, the repair of which is essentially a plastic operation or transplantation of the abdominal musculature, after having excised any excessive or redundant peritoneum, thus differing radically from the indirect type in which complete sac removal is the most essential step.

I have seen many hernial orifices which were so small that even a curved Kelly clamp, common in almost every operation, could not be passed to the bottom of the sac. How easy it would be for violent straining to force a tongue of ementum into this orifice for the first time, thus confirming the old belief that straining or heavy lifting causes a hernia—straining may force something into this orifice, but straining does not produce a normal healthy pouch of peritoneum. How many of you know of men in middle life, whose abdomens have either increased in size or their musculature relaxed, who present themselves for examination for hernia and tell you that they never had one until just a few days before that visit? Many of them have had pain in the inguinal region on excessive walking. I believe that many of these very small sacs mentioned above dilate gradually with increasing age and decreasing muscular tone, so that they can be diagnosed as hernia only when, through a loss of muscular support, the orifice is allowed to stretch and bowel or omentum come in.

Certainly the most frequent cause of recurrence is the incomplete removal of the sac at the first operation. It is surprising how often one finds the original orifice present when operating for recurrence when the Halsted or Bassini approach has been used originally. I have found it in one case operated upon by Dr. Halsted himself. Forty years elapsed between operations, and the silver wire used in repair was still holding. Certainly the rate of recurrence is low by any method, if done by good operators on thin subjects, but very few recurrences take place in these individuals. Let us take the case of a big man with an abdomen out of proportion to the rest of his anatomy, whose muscles are thick and in whom Mother Nature has not distributed the fat to suit the surgeon. Often have you seen the operator stop freeing the sac an inch or more below the orifice or base, because the peritoneum was tearing. Add to this situation an unsatisfactory anesthetic and you have the background for many recurrences. To sum it up—all of the original sac has not been removed. Does not this dimple or short pouch serve to encourage a recurrence? Certainly some of these cases have their recurrence before they leave the operating room. This is not true when operating according to the LaRoque method, when all of the sac and adjacent peritoneum is excised. The operation was designed to reduce the 9 per cent to 12 per cent recurrence which has resulted from wide application of the older methods.

From the literature it is obvious that surgeons in general have been more impressed with the necessity for complete removal of the sac than was true a few years ago. By this method all of the sac including the orifice and the adjacent redundant peritoneum is easily removed with lessened danger of trauma to bladder and spermatic cord. It should reduce our rate of recurrence and I am sure that it does.

The appendix is removed when operating for right hernia in all but the very old patients. Of course, there is an occasional case in which it cannot be done. In a few of these where it seems especially desirable to remove the appendix I have done a second muscle splitting, operating through the original wound opening. In most instances the appendix is or can be removed just as satisfactorily as when operating for appendicitis alone. It has been said that to combine the two operations is poor technique. I am yet to see a complication or wound infection develop after this procedure, and I feel that the objections are more apparent than real. Its use in strangulated hernia is obvious—the incarcerated bowel is subjected to less trauma and resections can be done most satisfactorily through the same incision.

To summarize, the advantages are:

1. The easy removal of the entire sac with its orifice and excessive adjacent peritoneum, with resultant high peritoneal suture.

2. Its obvious use in loculated sacs and in sliding herniae.

3. The lessened danger of injury and less trauma to the cord and bladder.

4. Incarcerated bowel is more easily released, and resections can be done through the same incision thoroughly satisfactorily.

5. The appendix is removed routinely when operating for right herniae.

CARCINOMA CORPORIS UTERI.*

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Carcinoma of the body of the uterus belongs to a group of cancers known as adenocarcinoma (Healy[1]). This type of malignant lesion arises from the glandular elements of the endometrium, an histologic anlage which distinguishes it from the cervical cancers which are of the epidermoid or squamous cell type.

It is not my purpose to burden you with an academic discussion of corpus cancer or a statistical study of the incidence of corpus cancer, its relative frequency in relation to cervical cancer or its percentage of five-year or ten-year cures. Rather, I would like to present some of the more practical aspects of the problems dealing with endometrial cancer with some emphasis on the pathological physiology of the endometrium as a possible anlage or precursor to the development of this type of malignancy and direct a few remarks on the diagnosis and treatment.

We, of course, are still hunting for the cause of cancers of all types. Here and there a definite step is taken and progress made toward the better understanding of the factors inherent in an individual which single him or her out as good soil for the growth of a malignancy. Much work has been done in the past few years on the influence of various hormones, particularly the estrogenic hormones on cellular activity and epithelial proliferation. A very common and highly active epithelial response to such estrogen influence is seen in endometrial hyperplasia, particularly the cystic degenerative type which is often called the Swiss cheese type, due to the histologic pattern formed by the stroma and large dilated glands. Until recent years, most authors have denied any relationship between endometrial hyperplasia and corpus cancer. Burch[2] has stated that he has never seen the two conditions associated in the same patient nor has he ever seen hyperplasia as a forerunner to carcinoma. Some months ago Novak and Yui[3] reported interesting observations on the possible relationship between endometrial hyperplasia and corpus cancer, offering the hyperplasia as evidence of excessive estrogen influence which might also be a factor in the production of cancer. That such a causal relationship between these two conditions may exist has possibilities, particularly when we remember the predisposing influences on the development of cancer of such lesions as cervical leukoplakia, gastric ulcer and Schimmelbusch's disease of the breast. There is much evidence today that there is probably some sort of relationship between endometrial hyperplasia and corpus cancer, that the one may precede the other and that cancer may actually develop from a pre-existing hyperplasia, particularly of the cystic, degenerative type, which depends on excessive quantities of estrogen for its development. Whether this is purely a coincidental coexistence of the two conditions or cause-effect remains to be proved. Certainly we frequently see endometrial hyperplasia showing such bizarre cell metaplasia and hyperplasia with evidence of marked epithelial activity, and proliferation as evidenced by numerous abnormal mitoses, to cause us to wonder if the next step in its development might be malignant change. Due to the high incidence of endometrial hyperplasia and the frequency with which we see it in clinical gynecology, its possible etiological role in the formation of cancer becomes of importance to us all. This is particularly true as our present day conservative treatment of hyperplasia in young women often fails to arrest bleeding for any length of time, and we are likely to ascribe an early recurrence of uterine bleeding to the hyperplasia, when as a matter of fact we might be dealing either with a combined lesion or a definite carcinoma which has arisen from the pre-existing hyperplasia.

Another interesting endocrine situation is the frequent occurrence of fibromyomata and corpus cancer. Norris and Vogt[4] report that 20.8 per cent of their cases of cancer of the body of the uterus were associated with fibromyoma. Just what may be the etiological relationship between fibromyomata and corpus cancer is not clear but that there is a possible common endocrine cause for these conditions has been shown by many workers who have observed an increased incidence in corpus cancer in patients

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known to have fibromyomata. Because of this frequent association of benign and malignant condition, it is important for the surgeon at the time of supra-vaginal hysterectomy for fibroids to inspect the interior of the uterus immediately upon removal for the presence of malignancy. If a malignant lesion is found, then the surgeon should remove both ovaries, tubes and the cervix at once.

Recently we have had under our care a woman whose clinical course exemplifies some of the points brought out in this discussion. She first was seen complaining of uterine bleeding of four months' duration. Curettage at this time showed a typical endometrial hyperplasia of the cystic, degenerative or Swiss cheese type, with very marked cellular activity, as evidenced by numerous mitoses and large swollen epithelial cells in the glandular epithelium. Following curettage she was free from bleeding for one month and then started again. Curettage one month later revealed an adenocarcinoma of the body, grade 1, or according to Ewing's classification, papillary adenoma malignum. In the sections made at this time one could see areas of benign hyperplasia adjoining definite areas of papillary adenocarcinoma in one low power field. Such a case is of practical importance as it emphasizes the need for careful histologic study of the whole specimen removed by diagnostic curettage and not as is too often the case a small piece or two of tissue which may not represent the important sections of endometrium to be studied.

Every surgeon should be his own pathologist, familiar with gross and microscopic changes in tissue and cells which are the criteria of impending or already existing malignancy. The surgeon must think in terms of pathology. Pratt[5] has emphasized that in the study of endometrial pathology all material obtained at diagnostic curettage should be imbedded and carefully scrutinized by the pathologist after permanent sections have been made. Frozen sections of endometrium are not adequate and, though they may enable one to make the diagnosis in isolated cases, the routine use of the frozen section technique in handling endometrium, particularly when one is searching for obscure pathology, is not advised. It is much better to wait for a paraffin or other permanent section which can be furnished in a few hours, thus enabling the pathologist to study carefully all the tissue obtained. Multiple gynecologic operations in women bleeding abnormally should be delayed until proper pathologic study of the endometrium has been made and a report rendered. In our clinic any suspicious bleeding is investigated before further operation is attempted, even though it may be necessary to prolong hospitalization a day or so or require a second hospitalization. Such a study will save an occasional major procedure which may be actually harmful in the face of a definite malignancy such as the Watkins' interposition operation for cystocele and prolapse, for instance in the presence of carcinoma.

If we expect to make any headway in prevention and treatment of cancer, we must be prepared to make earlier and better diagnoses than we have in the past. Bleeding is recognized as the most common symptom of cancer of the uterine body but there are many other conditions which cause bleeding from the endometrium which may confuse the diagnostician. One we have discussed already and have pointed out that there may be a causal relationship between this common cause of uterine bleeding and cancer. We do know now that they occur simultaneously in the same uterus and that we cannot rest from the search for cancer merely because we have found hyperplasia. Also, we must look with suspicion on any recurrence of bleeding in a case of hyperplasia, whether treated ultra conservatively, by curettage alone, or by a combination of curettage and conservative radium therapy. We feel that in the face of any abnormal uterine bleeding, the burden of proof rests on the surgeon to prove that it is not due to cancer and the surgeon must be ready to continue his search for cancer until it has been definitely ruled out by the pathologist. Such a study must be conducted in any type of obscure uterine bleeding in which there is no palpable or visual evidence of pathology. Curettage for diagnostic purposes should be one of our most common procedures. If practiced routinely, it will often reveal an early malignancy of the body which would otherwise be overlooked.

The early diagnosis of corpus cancer depends upon first the patient presenting herself for a study of any abnormal discharge, second thorough and careful study on the part of the surgeon of the patient generally and her endometrium in particular, and third the establishment of a close and intimate association between the surgeon and pathologist or, better still, adequate training in pathology for the surgical specialties so that the surgeon can study his own pathologic material.

The treatment of corpus cancer offers somewhat less of a problem than that of other types of genital cancer but there is still no routine in which these cases can be handled. Inasmuch as this type of cancer is usually confined to the uterine body, the five-year cure rate is higher than that for cervical cancer. Healy reports a cure rate of about 54 per cent. Stacy[9] noted that the largest number of patients that died in the first three years after operation died from local recurrence of the disease in the pelvis, which may mean either local extension before operation or spill at the time of operation. Glandular types of carcinoma have in the past been considered to be relatively radio-resistant, that is, they are not so amenable to destruction by radiation therapy as the epidermoid typers. That this is not altogether true has been shown by Healy,[6] Burman,[7] and Smith,[8] all of whom report regression of corpus cancer after radiation therapy. This being true, and in view of the rather high percentage of local recurrence after radical operation alone as noted by Stacy, there seems to be a definite field for radiation therapy in the treatment of this type of malignancy. However, unlike carcinoma of the cervix, endometrial carcinoma is essentially a surgical disease and, whenever possible, should be treated surgically. Norris and Dunne[10] believe all cases should be operated by radical panhysterectomy with bilateral salpingo-oophorectomy, followed by deep roentgen therapy. Certain inoperable cases must be treated by radiation therapy alone. In Healy's clinic at Memorial the feeling is that probably the best results are obtained by a combination of preoperative radium, radical operation, and postoperative roentgen therapy. In our clinic the average operable case of corpus cancer would receive an intracavitary application of from 3,000 to 4,000 mgh. of radium. The manner of placement and size of the applications of the radium, of course, must vary with each case but in general 50 or 60 mg. are placed in the cavity for eighty or sixty hours, being removed each twenty-four hours for cleaning and reapplication. Six to eight weeks following the radium therapy the patient is hospitalized and a panhysterectomy with bilateral salpingo-oophorectomy is done. We wait six to eight weeks to allow maximum benefit from the radium therapy and also to allow the radium reaction to subside. Three to five weeks later she is started on a course of deep roentgen therapy, the average course consisting of 8,000 to 10,000 R over a period of three weeks to one month. In specimens removed at operation under such regime we have found complete subsidence of the cancer from the radium alone. Such a regimen we hope will increase the five-year cure rate by prevention of the local recurrence which, as Stacy has shown, caused so many deaths within the first three years of the follow-up period.

These brief remarks concerning one of the difficult problems of gynecology indicate that there is much work to be done before we can feel satisfied with the progress in our fight against corpus cancer. Earlier diagnosis which depends on cooperation between patient, surgeon and pathologist should and will reduce the high mortality from this disease if the surgeon, pathologist and radiologist cooperate in the treatment. Certain endocrine factors which may influence the production of corpus cancer probably are also responsible for co-existing benign conditions, the presence of which may divert our attention to such an extent the more serious pathology will be neglected. Any irregular uterine bleeding must be traced to its source. The study of such bleeding leads through the fields of benign conditions to those which are malignant, so the study of such bleeding should never stop short of absolute knowledge that corpus cancer is not present. This can usually be done by the routine careful histologic study, by a competent pathologist, of all curettings removed from the uterus. Once the diagnosis is made, rigorous treatment is mandatory. In our hands this has best been accomplished by a cycle composed of preoperative, intracavitary radiation of from 3,000 to 4,000 mgh. of radium, followed by complete panhysterectomy, with removal of both tubes and ovaries six to eight weeks later. Finally, about three to four weeks postoperatively, a complete course of deep roentgen therapy is instituted with a contemplated one of 8,000 to 10,000 R. It is hoped that in the not too far distant future more standardized procedures will be evolved which will offer a better prognosis for the patient with early and moderately early corpus cancer, a disease, the very nature of which should yield a high five-year salvage if intelligently studied and treated.

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EXANTHEM SUBITUM.

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The name exanthem subitum was proposed by Veeder and Hemplemann[1] in 1921 for a disease which apparently occurs almost exclusively in infancy and early childhood. Zahorsky is credited with the original description of this disease as an entity. In 1910[2] he used the term roseola infantilis, and in a subsequent paper[3] he referred to the disease as roseola infantum. As both of these terms had been used rather indiscriminately by earlier writers, Veeder and Hemplemann thought a new name, which in itself was descriptive of the most striking symptom, would be more appropriate. Since their report was published, the name exanthem subitum has been generally used. Following their paper, several others by different authors appeared within a year or so, which indicated that the disease was wide spread both in this country and abroad. Little seems to have been discovered about this disease since it was first described, and in recent years there have been only a few articles concerning it. Up to the present time the etiology and mode of dissemination are both unknown.

Exanthem subitum seems to be an endemic disease which may occur at any time of the year. Cases have been reported in children up to fourteen years of age, but most observers agree that it is primarily a disease of infancy. The oldest patient in my series was three and one-half years of age. Because most of the patients are too young to discuss their symptoms, little is known of the subjective discomfort they experience. Objectively, the physical findings are slight in proportion to the fretfulness and fever usually observed.

In ordinary pediatric practice the diagnosis is rarely made even tentatively before the third day, and usually is not made positively until the temperature falls about the fourth day and the rash appears.

There are no laboratory tests that are diagnostic. Examination of the blood is of limited value, because the changes due to exanthem subitum, namely leukopenia with a relative lymphocytosis, also occur in other acute infections which present more or less similar symptoms. This is especially true of certain "grippal" infections, probably virus in nature, which appear in mild epidemics throughout the year.

In order to clarify my impressions of this disease, I have analyzed fifty-eight cases which occurred in my practice during the past few years. Data have been sought relative to the following points: age, sex, date, type of onset, duration and variation of temperature, irritability, appearance of pharynx, nodular involvement, symptoms, complications, and onset of rash. Since these data were obtained from brief records made on home visits, they are naturally not complete. Nevertheless, a fair picture can be drawn from a study of these records which should reveal the features of interest to the clinician.

TABLE I

Age 1—6 mos.	6—12 mos.	12—18 mos.	18—24 mos.	24—40 mos.
4	18	22	8	6

Age.—Table I shows the age of fifty-eight patients, divided for convenience into groups of six months. Reference to this table reveals that forty-four patients of this series were between six and eighteen months of age. Four were below six months and fourteen were above eighteen months. Of this later group one was thirty months old, and the two oldest were forty months each.

Table II represents the number of cases occurring in each month of the six and three-quarters year period. Reference to this table shows that the cases occurred every month in the year with the exception of November. No conclusions can be drawn

from such a small series except that the disease probably will appear every year, and may occur at any season.

TABLE II

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total*
1930	3	2	2		1	2						3	13
1931	1	2		3				1	1	2		1	11
1932			1	1	1			2		1			6
1933	2		1		2							3	8
1934					2	3		3					8
1935			2					1				1	4
1936					3	2	1		2				8
Total	6	4	6	4	9	7	1	7	3	3	0	8	58

Type of Onset. Analysis of the case records shows that the onset was abrupt in forty-five cases, gradual in one, and preceded by symptoms of acute naso-pharyngitis in thirteen. Closer analysis of the cases preceded by symptoms of naso-pharyngitis reveals that there was no uniformity in the duration or severity of these symptoms and creates the distinct impression that these symptoms were due to concurrent infections, and were not related to exanthem subitum. In practically every case when naso-pharyngitis was observed at the first examination, or had been observed previously by the parents, the onset of exanthem subitum was marked by a sudden rise of temperature and increased irritability. Taking these facts into consideration, it seems safe to say that exanthem subitum itself comes on abruptly and without obvious prodromata.

Duration of Fever. As well as can be determined, the febrile phase continued for from three to four days in twenty-three cases, and for four days in thirty-one cases. In only one case did the fever exist as long as six days, and in that case the continuation of the fever was obviously caused by complicating bronchitis and otitis media.

Variation in Fever. Records were made of the temperature at the time of the visits and, in a good many instances, notes were made concerning the temperature recorded by the mother or nurse. All that can be said definitely is that forty-six of the cases had temperatures between 102 and 104 plus during the illness. In four cases the temperature apparently did not go over 101 plus. Temperature of 104 or more were recorded in thirteen cases, and two patients had temperatures of 105—106 associated with rather severe convulsions. The impression gained from the study of these records is that the temperature varies each day, and that fairly high temperatures are of common occurrence.

Irritability. That irritability is one of the striking symptoms of this disease is obvious from the fact that most of the records have some reference to the child being cross and fussy. Quite often the irritability and fever were the only definite symptoms noted by the attendants. In two cases, as referred to above, convulsions occurred. The cause of this irritability is hard to determine as the patients are rarely old enough to describe their feelings. The two children over three years of age complained of headache, stomach-ache, pains in the legs, etc. Many of the patients by their behavior suggested sore throat, or earache. In only a few instances was there enough objective evidence of inflammation of the middle ear to substantiate the impression that earache actually was the cause of the crying. The irritability often persisted for two or three days after the rash appeared, though in other respects the patient seemed to be almost well.

Appearance of the Pharynx. The examination of the pharynx did not reveal any particular abnormalities peculiar to exanthem subitum. In twenty-nine cases the pharynx was described as slightly red and in fifteen instances small cryptic exudates, resembling a mild follicular tonsillitis, were seen. In thirteen cases a few small papular elevations were observed on the anterior pillars or soft palate, and in four instances these papules seemed superficially ulcerated. Unless there were a complicating catarrhal infection very little mucus was observed. The absence of any lesions resembling Koplik's spots helps to differentiate exanthem subitum from measles.

Onset of Rash. The onset of the rash, except in rare instances where some complication was present, generally coincided with the fall of temperature. In practically every case the rash began either toward the end of the fourth day or the beginning of the fifth. This rash resembles the beginning rash of measles. The lesions are macular, or very slightly papular, and are usually of a lighter red than the typical measles eruption. The rash occurs chiefly on the face and trunk but is usually present to a certain extent on the extremities. The lesions tend to

fade and reappear over a period of thirty-six to forty-eight hours. This peculiarity may be dependent on the cooling of the skin and subsequent warmth after bathing or changing the clothing, etc. The rash disappears without leaving any stains in the skin and without desquamation. Occasionally a suggestion of the forthcoming rash appears in the skin about the chin or over the chest on the third day, but at this stage it cannot accurately be described as a rash.

Nodular Involvement. It seems very probable that a careful search for slight involvement of the sub-occipital, post-auricular, and post-cervical nodes, was not made in the earlier cases of this series. Nevertheless, slight enlargement of sub-occipital nodes was recorded in nineteen instances, and similar enlargements of the post-auricular and post-cervical nodes were recorded in twenty-four and twenty-seven cases respectively. The nodes beneath the tonsils were slightly enlarged in eight instances. In regard to the nodular involvement, this disease somewhat resembles German measles, though as a rule the nodes are not as large and do not seem to be as tender as they are in the typical case of German measles. A routine examination of the lymph nodes will often reveal a slight increase in size as the disease progresses. This observation which I have made a good many times in the later cases of this series leads me to think that slight swelling of the sub-occipital and post-auricular nodes is a characteristic feature of exanthem subitum.

Symptoms. The characteristic symptoms of exanthem subitum appear to be fever, irritability, a duration of four to five days, and the appearance of the rash after the final fall of temperature. In addition to these symptoms a slight cough was recorded in twenty-three cases. This cough was never distressing and occurred as a rule for only one or two days during the course of the disease. Vomiting was recorded in nine cases. Thirteen of the patients had loose stools, usually with a little mucus, which appeared for one or two days. Slight coryza was recorded five times. The few children who were old enough to talk complained of pains in their legs, head, and abdomen.

Complications. Exanthem subitum *per se* seems to be singularly free from complications. Slight catarrhal otitis media was observed in fifteen cases and in one case an otologist incised the drums before the true diagnosis was made. This operation was followed by slight if any discharge. In another case, complicated apparently by a preceding sinus infection and bronchitis, the drums ruptured spontaneously. This infant had had within a period of two or three months previously a severe respiratory infection accompanied by a purulent otitis media which had persisted for about three weeks. A slight conjunctivitis was recorded in three cases but in at least one of these the patient had recently been exposed to "pink eye". Examination of the urine from a good many of these patients revealed nothing abnormal except in one case which had a temperature of 106 with convulsions. In this patient's urine a very slight trace of albumin and a few scattered red blood cells were found. Uric Acid crystals were found quite often.

Etiology and Transmission. There were no data in my records that cast any light on the causative factor of this disease, or the way it is transmitted. None of the parents volunteered any history of exposure to other cases, and those questioned generally denied that their child had been exposed. Only two of my cases occurred in the same family in the same year and these came three and a half months apart. Nevertheless, the whole clinical picture suggests a virus disease of specific type which rarely affects individuals beyond the first three years of life. If older persons are affected their symptoms are atypical and consequently unrecognizable.

Treatment. From the description given above, it is obvious that the treatment must be symptomatic. If the patient has had a preceding naso-pharyngitis, a non-irritating shrinking solution such as ephedrine in normal saline appeared to be of value. Aspirin tends to lower the fever and make the child more comfortable. One of the barbiturates was frequently employed for the needed sedative effect. Five per cent phenol in glycerin was prescribed when otitis media was present. Paracentesis is not indicated unless there is an accompanying naso-pharyngitis and the examination of the drums suggests the presence of pus. If exanthem subitum is suspected, watchful waiting for a day or so may prevent a useless operation.

In conclusion, it may be said that exanthem subitum is a definite disease entity which occurs in recognizable form almost entirely in infancy. It is not usually a severe illness, but the fever and irritability often create considerable apprehension in the minds of the parents.

Due to the paucity of physical findings the physician is generally unable to make a positive diagnosis before the rash appears.

A detailed study of fifty-eight cases, which brings out the salient features of the disease, is presented.

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OLIGOSEPTIC TREATMENT OF EYE INFECTION.

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The term "oligosepsis" was introduced by me (1) to designate by this term any chemotherapy directed against the virulence of pathogenic microorganisms with the aim of reducing their infectious ability without necessarily killing them, the bacteria primarily. It was based on the experience of Much (2) that harmless parasities can be made extremely virulent by treatment with acids, and on my own experiences (3) that in actual infection, pathogenic microorganisms can be made harmless by restoring the acid base balance in the infected area. This appears to be possible: (a) by hydrotherapeutic procedures designed to produce sweating; (b) by antiketogenic diet; (c) by application of powdered sodium bicarbonate or of soap lather as buffers in infections of the skin; (d) by application of protein buffers in infections of mucous membranes. As my own experience has shown, the oligosepsis produced in this way was the most harmless and the most proficient way of treating acute infections.

The further development of these ideas has led me to the evaluation of the buffer properties of soap lather in oligoseptic treatment of the infections of the eye. The present day knowledge of the chemical properties of soap is given in the "Ullman'sche Enzyklopaedie der technischen Chemie". As this states, due to the fact that the fatty acids are very weak acids dissolving in water into extremely foaming solutions, very little electrolysis can be elicited in these solutions. These solutions belong to the so-called colloidal electrolytes. The cation of the solution is the ion of the alkali metal; the anions are not only the simple fatty acids, but also a compound formation having a great quantity of electrical charges and formed by a considerable amount of connected undissociated soap molescules. Simple fatty acid anions could be elicited in weaker solutions; however n/2 solutions contain only colloidal electrolytes. An increase of the concentration converts even the undissociated soap completely into the colloidal shape. This compound formation of ion micelle (McBain) is highly salvatized. However this salvatization decreases with the increase of the concentration which then results in an increase of the conductivity. Contrary to previous statements, very little electrolysis can be elicited in soap solutions and the OH-ions concentration is only formed in solutions of n/3000 to n/300; it is strongest in the salts of the high molecular fatty acids. The concentration of alkali ions is so little that, according to latest statements, the alkali action of soap when used for washing can be entirely ignored.

This infinitesimal degree of soap solution ionization seems to explain the buffer action of soap lather when applied to infected areas of the skin; it also seems to explain the obvious buffer like action of soap lather in wet media and especially in the orbital cavity.

Probably there is no person in the world who has not at least once in his life gotten some soap in his eyes. As careful as one may be, some time it is bound to happen. When it happens the carelessness of the evil doer causes a painful sensation in the eye which, according to common experience, does not last very long; after a couple of minutes, the pain disappears. Having had a traumatic injury to my right cornea and eyeball in the winter of 1937, which was associated with subconjunctival bleeding and a very extensive reactive conjunctivitis, I decided to try out in self experiment the oligoseptic and antiphlogistic action of soap lather. After having suffered all night the extremely painful sensation in the right eye, I

decided to test out the action of soap. As expected the application of soap lather to the eye caused a considerable increase of the pain caused by the trauma. However this pain eased after several minutes, and then I realized that my right eye which had been closed since the day before had opened spontaneously. There was a marked increase of the injection of the conjunctival capillaries; however, it was not the redness of an inflammation but rather the livid redness of an irritation. After about half an hour this livid redness disappeared, leaving the bright red spot at the cornea, which was caused by the subconjunctival bleeding. I repeated the treatment the next morning and it resulted in a complete recovery. Since that time I have had the opportunity to corroborate this experience in numerous work accidents with the same results.

The next step was to find out whether a conjunctivitis or keratitis due to infection can be influenced in the same way. There have been several cases of simple acute conjunctivitis or keratitis which have been subjected by me to oligoseptic treatment with soap buffer and which resulted in a recovery of the patients. The conjunctiva would clear up in about half an hour and no pathological symptoms could be noted afterwards. However, in cases where the infection had persisted for more than one day, the objective symptoms could not be removed by a single treatment and a daily application of the buffer for several days was necessary. The same progress was observed in several cases of blepharoconjunctivitis which, as known, is a very stubborn condition. But even the blepharoconjunctivitis, as my own experience has shown, could be improved considerably and even cured by systematic treatment with the buffer colloid. In cases with foreign body in the conjunctiva or the cornea, the foreign body was removed under aseptic precautions and oligoseptic treatment with soap lather applied. The reaction of hordeola to oligosepsis depended upon the stage of the development. In the beginning hordeola a single treatment was sufficient to check the development; abscessed hordeola had to be punctured, the pus removed and the infection checked by oligosepsis.

A considerable amount of stubbornness has been exhibited by a case of ophthalmia neonatorum. The case involved a premature, underdeveloped and considerably undernourished baby girl. The accoucheur, according to the parents' statement, had neglected to apply the silver nitrate solution to the baby's eyes after her birth and, since the third day after the birth, a marked ophthalmoblennorrhea was present. The baby was cyanotic and both conjunctival sacs were filled with pus, both eyelids pasted together. Both eyes were washed out with soap and water and then soap lather applied, which, as expected, caused a considerable amount of pain. However, after several minutes the baby opened her eyes and kept them open for several hours. Her face expressed satisfaction, which probably suggests that the subjective symptoms of the conjunctival irritation had been removed by the oligoseptic application at once. After several hours the pus secretion started again and the baby was found the next morning with both eyes closed and the conjunctival sacs and eye corners containing pus. The oligoseptic treatment was repeated thereafter every morning for six weeks and has resulted in a complete recovery of the patient without any remaining injury to her eyes.

All these experiences seem to prove that oligosepsis in the form of local application of soap lather buffer to infected eyes is the most harmless and most proficient way of treating acute infections of the eye. It can be successfully applied in chronic infections and seems to be helpful even in ophthalmia neonatorum.

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NEO-ARSPHENAMINE IN HERPES ZOSTER—CASE REPORTS.*

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Herpes zoster is an acute inflammatory disease of the skin characterized by the appearance of vesicles, occurring upon an erythematous base, along the course of one or more of the peripheral sensory nerves. The site of predilection is the thoracic, lumbar, brachial and supra-orbital regions.

The vesicles are from grape-seed to green pea in size, tend to form in groups or patches and contain a clear watery fluid. The lesions develop in successive groups for several days, then tend to dry into crusts and after about ten days begin to disappear, leaving areas of hyperemia or pigmentation. As a rule the eruption is unilateral and the disease seldom recurs.

The pain, of a neuralgic character, may be severe or moderate. In the elderly, though the eruption may be slight, there is often much pain, and this may continue long after the eruption has left. The average duration of the disorder is from ten days to three weeks.

Pathology: The disease is generally considered to be an acute infection of the posterior root, gasserian or geniculate ganglia, with secondary skin lesions.[1] The most frequent finding is an interstitial inflammation of the ganglionic centers, less often a descending neuritis.[2] The cutaneous changes are inflammatory in the epidermis and corium, the corium showing a vascular dilatation throughout, with often inflammatory changes in the vessel walls.

Edema is most marked in the upper layers of the corium, the roof of the vesicle being composed of the horny or granular layer; the floor, of the lower rete or papillary layer of the corium.

Infection, traumatism and chemical poisons are supposed to be the chief causes. No specific microorganism has been isolated.

Rosenal and Oftedal[3] produced the lesion in animals by injecting streptococci isolated from the tonsils and pyorrheal pockets of patients suffering from herpes zoster.

Fenton[4] believes that it is due to a virus which enters by the nose and becomes localized in the ectodermal structures and tissues of the sensory nervous system. It may travel from the cortex to the periphery, inoculating the structures along which it travels, which seem to serve as a culture medium.

It seems fairly established that the same virus that causes herpes zoster causes chicken-pox. Since 1888[4] when Bokay suggested the relationship of these two diseases, instances of their association in the same family, or close contacts, are reported.

Kundratitz[4] has found that the fluid taken from the vesicles of a typical zoster eruption, when inoculated into the skin of children, produced a generalized eruption similar to chicken-pox.

Herpes zoster occurs not infrequently in epidemics associated with influenza and chicken-pox. Sachs[5] reported an epidemic of sixty-nine cases in Breslau in 1901. It occurs also with such infections as malaria, eclampsia, meningitis and syphilis. Cases are often recorded following gun-shot wounds, spinal injections and an occasional case following anti-luetic treatment.

Therapy: Since the etiology is questionable, treatment is entirely directed toward the relief of pain and prevention of scarring. For the relief of pain the usual analgesics of aspirin, phenacetin and pyramidon have been used. In severe cases, the opiates have been resorted to. Of the many local applications, lead and opium wash and calamine lotion are among the best.

Howard Fox[6] used paraffin melted 114 degrees and applied it as a spray with good results in seventeen cases.

Sidlick,[1] in 1930, reported very successful results from pituitrin injections in a series of fifty-four cases. Niles, in 1932, also reported results from this drug.

Ruggles,[1] in 1931, reported excellent results in fifteen cases with the intravenous administration of sodium iodide.

Sutton and Stelwagon[1] have used a mild galvanic current, the positive electrode being placed over the affected ganglia with fair results.

Freude,[1] in 1931, resorted to paravertebral novocaine in several cases.

H. Foerster[7] found X-ray therapy over the spinal region beneficial.

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Read before the Staff of the Medical College of Virginia, December 8, 1938.

Jones and Alden[8] reported good results in 1936 from the use of auto-hemotherapy.

The many measures advocated prove the lack of each to meet the full requirements of a satisfactory treatment. To this list I wish to add the administration of neoarsphenamine, so far as I know, first suggested by J. N. Roussel, of New Orleans. Three case reports follow.

CASE REPORTS

Case 1.—D.H.M., white, male, thirty-five years of age, was seen in the office April 5, 1938, complaining of a moderately severe pain confined to left side of face, radiating back to the neck, with associated vesicular eruption and swelling about the eye on that side. Patient stated that on Wednesday, six days previous, he noticed a vesicular rash on the forehead with associated moderate swelling about the left eye. Two days later he developed severe pain, radiating back to neck, accompanied by rash confined to that side. He had been using hot boric acid compresses, which had given only slight relief. He was given .3 gram neoarsphenamine at time of visit and advised to continue compresses. He was seen again on April 9 and was considered nearly well at that time.

Case 2.—Miss L.S., white, female student, twenty years of age, was seen in the office on January 28, 1938, complaining of a vesicular rash over the left supraorbital area, with associated pain and itching. Patient stated, beginning Sunday, five days previously, she noted an itching sensation over the left eye area, followed in a few hours by a rash spreading upward from the left eye over the left side of the scalp. Examination revealed a typical herpes zoster with vesicular eruption extending from the upper eye-lid over the distribution of the supra-orbital nerve and left side of scalp, slightly painful on pressure. Since patient was returning to school in Williamsburg, it was recommended that .3 gram neoarsphenamine be given there by a local physician. This was done and the atending physician reported as follows:—"Results were nothing less than dramatic, as patient stated she had no pain in a few hours following administration of the drug; the lesions soon began to heal and were entirely gone in about four days."

Case 3.—R.H., colored, female, age forty-five years, was seen in the skin clinic at the Medical College on March 7, 1938, and complained of a continuous, aching pain along the fourth and fifth inter-costal spaces of the left chest region, more severe on inspiration. Patient stated that on February 28, she noticed a moderately severe aching pain just below the heart, radiating to the back. On examination the patient had a typical herpes zoster, involving the fifth inter-costal nerve, with pronounced vesicular eruption over this area. She was given .3 gram neoarsphenamine, and lead and opium wash was applied locally. She was seen again on March 10 and given another .3 gram neoarsphenamine. On March 15, she was discharged, the pain and lesions having disappeared. It is interesting to note in this case the patient was under anti-luetic therapy but was receiving bismuth at the time of onset.

To date, four other patients have been treated with neoarsphenamine and the results, as a whole, have been very dramatic, relief of pain and eruption being noted in a few hours to a maximum of one week, with the exception of one case. The condition in this instance was bilateral, involving the posterior cervical nerves. This patient was cleared of the eruption in three days, but was not free of pain for about two weeks.

With full consciousness this is adding one more remedy to a long list, none of them being superlative, I still feel the results in some of the cases have so far excelled those treated by other measures as to make it worthy of trial.

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17 East Grace Street.

AN ELECTRIC INCUBATOR FOR PREMATURE INFANTS.*

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Various methods of keeping premature infants warm are in common use today. A few of these, mentioned in order of increasing cost are: Hot water bags, a light cradle covering the bassinet, an electrically heated bassinet, a bassinet surrounded by a hot water jacket (The Hess Bed), the Castle "Humidicrib" (an enclosed bed with its atmosphere controlled as to temperature and humidity), and, in some large institutions, an air-conditioned room.

The incubator described here was built according to our plans by a local furniture manufacturer. Although relatively inexpensive it has proven to be thoroughly dependable and much more satisfactory than the hot water bags and light cradles previously in use. Several additional incubators have since been constructed, so that one or more is available in each of the four local hospitals.

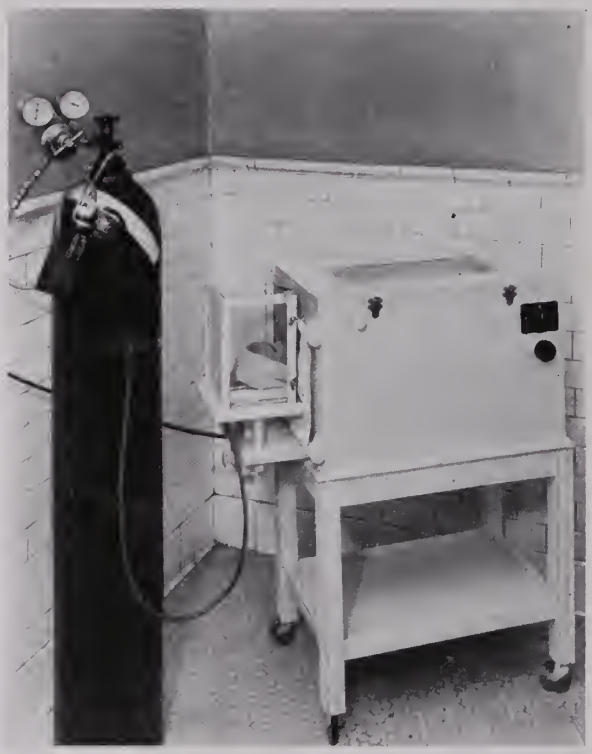
DESCRIPTION

The incubator consists of a wooden box in which the infant's body lies. The head extends outside of the box into a small uncovered chamber which may be used when needed as an open top oxygen tent (Burgess[1]). In the incubator is an electric heating element made up of three special light bulbs which lie in rosette formation on the floor of the box beneath the infant's tray. The current supplying these bulbs is turned on and off by a thermostat which is sufficiently accurate to maintain the temperature within a range of 1°F. We have used thermostat settings from 90° to 98° for infants of various ages and weights.

The top of the box is hinged and has a window in the center, below which is suspended a thermometer. Because of the hinged top of the box and the open top head chamber it is possible to feed and bathe the baby and change his clothes without removing him from the incubator.

In order that the apparatus may be used for babies of different sizes and in order to permit different positions of the baby, almost every part of the incubator is made adjustable; the head chamber can be raised or lowered; the tray on which the baby lies can be raised or lowered at either end (for instance, the head may be lowered to allow mucus to run out of the mouth).

Just outside the head end of the box are two vertical curtains made of soft cotton flannel. The infant's neck lies between these two loosely hung curtains which are then adjusted about the neck to keep the heat in the box. A cap or hood is used on the head of small premature infants to avoid chilling.



An electric incubator for premature infants.

The head chamber has a wooden floor covered with a cushion. Its three transparent sides are made of Dupont Plastacele. The top and the side next to the incubator are both open. When oxygen is indicated, the latter side of the chamber is made air-tight by covering it with a piece of rubber sheeting which is fitted about the infant's neck. The sheeting is held in place by two clamps of special design. Oxygen is introduced through a perforated copper tube that lies on the floor under the baby's nose. An outside connection is provided for this tube. The oxygen is moistened by passage through a wash bottle. We

*The incubator described was exhibited at the sixty-ninth annual session of the Medical Society of Virginia in Danville, October 4-6, 1938.

have found that a flow of two to four liters per minute is sufficient to maintain a concentration of from 50-60 per cent oxygen at the level of the infant's nose. To control the oxygen concentration we test it frequently with the simple instrument designed by Emerson.[2]

Discussion of Design

By keeping the infant's head outside of the heated box three objects are accomplished:

1. The baby is enabled to breathe the freely circulating air of the room. This air is naturally at a lower temperature (75°-85°) than the air inside the box. Also the room air may be kept moderately well humidified by the use of wet towels placed on the radiator or by an electric vaporizer. We have been able to raise the humidity of a steam heated room in winter from the dangerously low figure of 15-20 per cent saturation to 45-60 per cent. The importance of the proper humidity in the inspired air of premature infants is emphasized by Blackfan and Yaglou.[3] It must be admitted that even 60 per cent saturation is below the optimum for very small premature infants.

2. The second advantage in keeping the head outside is that less harm would be done the baby in case of accidental over-heating. The body can stand a high temperature better than the brain.

3. A third advantage is in the ease with which the baby's face can be kept constantly under observation for cyanosis, vomiting, or distress from any cause.

Source of Idea for Incubator

We wish to emphasize the point that this incubator is not original either in principle or in details of construction. It represents a combination of features that have been used by others for a number of years. However, this exact incubator is not available commercially as far as we know, nor is it in use in any other institution.

The idea arose originally from use of a Drinker-Collins infant respirator-incubator[4] which is a modification of the Drinker respirator designed by Murphy[5] for the resuscitation of asphyxiated newborn infants. A heating element and thermostat were added to the original respirator so that the infant could be kept warm during resuscitation. In the Childrens' Hospital, Boston, two of the respirator-incubators were frequently used for premature infants as incubators only. When used in the air-conditioned premature rooms, they were found to be very satisfactory.

We have added the open top oxygen tent, which again, of course, is not original.

Specifications

The incubator is constructed of kiln dried cherry wood. All joints are mortised.

Thermostat: Insertion type No. IT-4 made by Julien P. Friez Co., Baltimore, Md.

Heating bulbs: Westinghouse No. T-10, 25 watt tubular lamp.

Top window and sides of the oxygen tent are made of Dupont "Plastacele, c-7504, Thickness 0.060".

Above the bulbs is a sheet of asbestos board. The tray is made of enameled sheet iron.

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THE ERYTHROCYTE SEDIMENTATION PHENOMENON—A REVIEW.*

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History

Like many modern medical tests and observations the sedimentation phenomenon had its genesis in the minds of the ancients.[1] We refer to the theory of the four humors. Galen, when he described "crusta phlogistica", recognized that blood on standing would separate into two layers, a serum and a clot, and that the blood of diseased persons separated into several layers before clotting could take place. The uppermost yellowish fluid, the serum, was known as "cholera" or yellow bile. Next, the grayish white layer of fibrin in the upper portion of the clot, was

*Read before Staff of McGuire Clinic, Richmond, Va., November 15, 1938.

known as "phlegma" or mucus. The bright layer of red cells was known as "sanguis," and the dark red layer of red cells without oxygen was known as "melancholia" or "black bile". This distinct separation of the "humors" was thought by the Greeks to be the cause of ill health. Later the purpose of treatment in general was to rid the body of the "phlegma" layer of the "crusta inflammatoria".

However, not until 1921 was any significant information derived from the erythrocyte sedimentation rate. Fahraeus of Sweden,[1] in search of an easy test for pregnancy, found that the rate was not only increased in this but in many diseases also. Since that time the test has been simplified, its use broadened, and the rationale more clearly but by no means completely understood.

TECHNIQUE

Many techniques have been used, some giving results in time per standard distance of settling (Linzenmeier); others the distance per standard time of settling (Westergren). Cutler's method (a modification of the latter) which is widely accepted because of its simplicity is done as follows:

Specially designed tubes of one cc. capacity graduated into 50 mm. divisions with 0.0 at the one cc. level are used. Nine-tenths cc. of blood from vein mixed with one-tenth cc. of 3 per cent sodium citrate are placed in the tube. Readings of the level of settling are made according to Cutler's original article[2] every five minutes for an hour. For practical purpose, however, we have found fifteen minute readings accurate enough. These readings forming a curve are posted on a special chart. Normal sedimentation rate for men is 8 mm. drop and for women 10 mm. drop in an hour.

PHYSIOLOGY

In the excellent article of Cutler, Park and Herr,[3] it is shown that the plasma is responsible for the settling and not the number, size, shape or other characteristics of the erythrocyte. Cells of rapidly settling blood are transferred to "slow" plasma, and the sedimentation is slow, while if cells from blood of slow settling time are transferred to "fast" plasma their sedimentation rate becomes rapid. They also observed that plasma which caused *rouleaux* formation of erythrocytes caused an increase in the settling rate.

There are three phases to the settling phenomenon. The first stage is that of aggregation which lasts from five to thirty minutes; the second is the stage of true settling; and the third is the stage of packing. The last stage is the only one affected by anemia. This knowledge emphasizes the importance of plotting the readings at fractions of the hour rather than only at its termination as some have advocated. The first three to five minutes of the curve represents true sedimentation; the last fifteen to twenty minutes represents packing which depends on number of erythrocytes.

There are certain physio-chemical variants that alter the sedimentation rate, which must be constantly borne in mind in the clinical evaluation of this test:[4]

1. An increase of the fibrinogen content of the plasma causes an increase in the sedimentation rate.

2. Electrolytes, alkalies, acids or salts irrespective of ionization inhibit sedimentation.

3. The normal increase of sedimentation in females is explained by the increase of globulin content of the blood.

4. Fever *per se* (not taking into account the cause of the fever) has no influence on the sedimentation rate.

5. The existence of anemia causes an increased sedimentation index by the effect of the low number of erythrocytes on the packing or last phase of the phenomenon.

6. There are certain factors in the technique of the test which influence the rate. If the test is carried out in a cool atmosphere the rate will be slowed; if in an atmosphere warmer than body temperature the rate will be increased. For practical purposes room temperatures from seventy to eighty degrees is satisfactory for performing the test. If the sedimentation tube is less than 2 mm. in diameter capillary attraction will alter the true sedimentation rate. Deviation of sedimentation tube from the perpendicular increases the rate.

7. There is no correlation of sedimentation rate with the total leucocyte count, the per cent of neutrophils, or the Schilling shift.

8. Lecithin and albumin retard the rate; cholesterol increases it slightly.[5]

9. Marked hyperglycemia, i.e., over 200 mm., slows the sedimentation rate. High total lipoids increase the rate.[6]

Likewise there are certain clinical variants which affect the sedimentation rate:

1. Pregnancy from third month to term is the only physiological process that is accompanied by rapid sedimentation.[2]

2. Sedimentation rate of the female is slightly more rapid normally than the male.[4]

3. The sedimentation rate is slightly decreased in the first month of life and increased in age.

4. Menstruation causes little or no change in the rate.

5. Time of day, ingestion of food, and exercise do not affect the rate.

CLINICAL APPLICATION

Now, in general, we find the sedimentation rate is an index of the extent or speed of tissue destruction. It is increased in all general infections such as the exanthemata, pneumonia, rheumatic fever, tuberculosis and syphilis. It is increased in septicemia, acute coronary thrombosis and in pelvic inflammations. It is increased in neoplastic disease—particularly in the metastatic stages. It is increased in localized acute infections as in abscess formation, acute sinusitis, mastoiditis, and in some chronic localized infections depending on the extent.[2] It is increased in acute intoxication such as lead and arsenic poisoning and in thyrotoxicosis. It is normal in simple catarrhal inflammations as acute appendicitis, colitis, rhinitis, and bronchitis, and in presence of low grade foci of infection such as apical tooth abscess and chronic tonsillitis. Chronic ulceration such as gastric and duodenal ulcer produce no change in the sedimentation rate. There is no change in functional disease, allergic states, benign tumors, and most skin diseases.

The sedimentation rate is obviously not specific but there are certain differentials in diagnosis in which it is of definite value.[7] Coronary thrombosis gives a rapid rate while angina pectoris produces no change in it. Pelvic inflammatory disease produces a rapid sedimentation while acute appendicitis causes no change.[8] Ninety-one per cent of cases of atrophic arthritis gave increased sedimentation rate, whereas hypertrophic arthritis rarely causes any change of itself.

The sedimentation rate is a valuable indicator of the progress of rheumatic fever.[9] Clifton states that in this disease without carditis the sedimentation rate may be increased as long as two weeks following the subsidence of all clinical manifestations of the disease.

At Johns Hopkins Diagnostic Clinic, of 444 cases with a normal sedimentation rate only eight had occult disease. Two had chronic nephritis with marked renal insufficiency; one had pulmonary tuberculosis and hay-fever; one amebiasis with one degree fever; and one fever of undertermined origin. One had acute pyelitis with hydronephrosis, another had carcinoma of the descending colon, and the last pyelitis and renal insufficiency. The last three had been misinterpreted because of an over correction for anemia.

From the Henry Phipps Institute of Philadelphia, 177 of 328 individuals who after routine examination had been considered healthy or suffering from a trivial ailment had increased sedimentation rates. Re-examination of these revealed non-tuberculous basal infiltration of the lungs in ninety-six; apical tuberculosis in thirty-two; positive Wassermann in thirty-five; pelvic inflammatory disease in five; and possible carcinoma of the lung in one. In only eight was no abnormality found. Hence this test is a valuable caution sign to indicate disease which because of its obscure nature may have been overlooked.

Bethell[10] *et al,* in a recent review of the literature on blood, finds the sedimentation rate of value in the detection of disease, measurement of activity and progress of diseases as tuberculosis, salpingitis, rheumatic fever, coronary thrombosis, and acute febrile illnesses, and, thirdly, in differential diagnosis.

The sedimentation test, although affected by a host of variables, is of value diagnostically in at least helping to limit the problem of a given case to those conditions which are known to give increased sedimentation rate or to those which do not. An increased sedimentation rate is never a normal finding to be disregarded lightly and always justifies a search for its cause, but, on the other hand, a normal sedimentation rate does not always give assurance of the absence of disease, and it is important that the clinician remember this. We recently observed at autopsy a metastatic carcinoma of the stomach and liver in a patient whose sedimentation rate was 8 mm., the normal rate. It is of value prognostically in that it is a sensitive index of the presence of tissue destruction—hence, the progress of disease. It is a simple test requiring little equipment and a minimum of training and expense. Remembering its

limitations, we find it a most valuable adjunct to laboratory diagnosis.

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OPERATIVE OBSTETRICS—SOME REMARKS.*

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Some realization of the scope of the subject assigned to me in this symposium may be imagined from the fact that recently Munro Kerr has written a most interesting volume of over 800 pages, the title of which is "Operative Obstetrics". Obviously my paper can consist of only a few random remarks. Discussing a topic of this nature before a society such as ours, the obstetrician is apt to, and frequently does, fall into one of two pitfalls. Either he will demonstrate some procedure or theory that only the specialist can visualize and perform under ideal hospital conditions, or he will preach extreme conservatism only to be surprised by his colleagues the next morning doing the very things he had so soundly condemned the evening before. Not wishing to be caught in either of these traps, I thought, perhaps, if we brought up for discussion some of the indications for the various operative procedures, which sometimes are necessary, it may be of mutual benefit.

Nature, in devising the means of propagation, has fashioned a marvelous mechanism. It is for this reason we are prone to forget that occasionally Nature can make mistakes and bring disaster to the mother or child. Kerr says that the accoucheur "* * * must never presume that a parturition is normal. He must not be content until he has satisfied himself that it is not abnormal".

INDUCTION OF LABOR

A casual review of my case histories startled me by the large number of patients who had elevated blood pressures at their six weeks and six months post-partum examinations. In some of them the prepartum blood pressure had been normal and there had been no toxic symptoms. Most of them, however, had had slight to marked elevations of blood pressure antepartum. Toxemia of pregnancy, we believe, is a vascular phenomenon caused by some agent or agents insulting the vascular system. At first we might call the disturbance a functional disorder, but repeated insults will soon make the affection pathological. What we are leading up to is this: If, in the latter months of pregnancy, there is an elevation of the blood pressure with a continuing rise that does not respond to treatment, regardless of the urinary findings, we would recommend induction of labor at the earliest favorable moment. This type of case rarely develops into the eclamptic type if the elevation is slow and drawn out. And because the mother has no outstanding symptoms, the physician is often held in ridicule if his advice is not

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followed and normal parturition follows at term. However, the layman does not look five or ten years hence. He does not realize that irreparable damage to the vascular-renal system may occur. Vascular-renal damage in these cases is inevitable and Hallum has shown that retinal damage from spastic arterioles also is to be greatly feared. If ophthalmic examination shows marked retinal changes, a favorable moment for induction should not be waited for.

Eclampsia is now treated conservatively, and rightly so, but when the patient is under control we should induce labor, preferably by gentle means: rupture of the membranes. McCord, in a side remark, once said, "Providence has been good in helping you with the eclampsia; why tempt her further?"

Induction of labor for contracted pelvis has been practiced in the British Empire for some time. The procedure, although it is still prevalent, is not used as much as formerly; in this and other countries, save Britian, only in isolated instances is it used. As many patients with contracted pelves deliver normally, it does not seem quite fair to subject the fetus to such a handicap as a premature delivery. If, after a trial labor at term, delivery from below seems hazardous, Cesarean section can be done.

As for the method of induction, here, as in all the procedures in obstetrics, circumstances must decide the method to be used. If maternal conditions demand immediate evacuation of the uterus, section would seem to be the wise procedure—fulminating toxemia and placenta previa, for example. Fetal conditions demanding section would be toxicity in an elderly primipara, or, in case the baby is at a high premium, prolapse of the cord before or at the onset of labor in a primipara (Marr).

When haste is not necessary we can use less radical means. The author's method, which has failed in only a few instances, is as follows: Castor oil, ounces two and one-half. As the bowels begin to move, a hot, high, soap-suds enema is given. While this is being expelled, two minims of pituitrin are injected. (Many authorities recommend intranasal pituitrin.) The pituitrin is repeated at half hour intervals until contractions ensue or five doses have been given. You notice quinine is not used. It probably is of no benefit and since the investigations of Taylor and the researches of West we can assume there is a potential danger of deafness for the child from its administration. If the fetus is in a vertex presentation and the manipulation is easy the membranes are ruptured.

FORCEPS

A house officer of mine, David Pecker, once asked me a most instructive question: "Can you practice obstetrics by the clock?" At that time we were basing our indications for forceps interference in labor on two hours with the cervix completely dilated, or one hour with the head on the perineum. Now we interfere when there is definite lack of progress, be it one-half or six hours. A head that is passing over the perineum a little more with each contraction does not need interference; however, if there is not rhythmic progression, perhaps it is better, both for the baby's and the mother's sake, to give assistance. Keeping a check on the fetal heart will give some indication of the condition of the fetus. Of course, the fetal heart beat slows with each contraction, but if the rate of the fetal heart goes down below a hundred and *remains that low,* it is much safer for the fetus if labor be terminated. A sign, which I do not recall having seen described, which gives us a clue as to the state of the fetal circulation is this: Press on the baby's scalp. If the resultant blanched area immediately becomes discolored when the finger is removed and it cannot be distinguished from the surrounding parts, we can be assured that the circulation is all right.

Conservatism in obstetrics is hard to define. If it means waiting and waiting for the natural forces of labor until the mother is exhausted or the baby has almost perished, then I am not for it. Perhaps the bad results from forceps that Stander published some years ago were because of the policy of waiting until delivery seemed impossible. But if conservatism means a deliberate judgment of the maternal powers and interference as soon as these powers fail, or interference when we think we can safely make things easier for the mother without harming her unborn child, then I am a conservative. That seems to me the conservative view-point.

A posterior position is the most constant cause or indication for the use of forceps. When the diagnosis is made, at once we think of operative delivery. This is probably because of the theory that the abnormal mechanism is in itself responsible for the delay in labor. The head is usually extended. Time, that healer of many things, if allowed a chance, will cause flexion, which will facilitate rotation and give us a

normal delivery in over 80 per cent of the cases. Disproportion is the chief cause, we think, of the failure to rotate in the remaining per cent. In the generally contracted pelvis in which the head comes down extended in a military attitude, very seldom does the vertex rotate; indeed, in some pelves—the anthropoid type of Caldwell, for example—it is perhaps better to deliver the baby face to pubes despite the resultant damage to the perineum. I have also done this when the ischial spines have been so prominent that damage to the vaginal walls was feared if rotation should be attempted.

How long to wait for rotation of the head after complete dilation of the cervix can not be definitely stated. The condition of the fetus, the character of the labor, the thinning out of the lower uterine segment, the condition of the patient—all these are determining factors. When any one of these factors is at fault, delivery should be consummated. One thing is certain, if the rotation stops at the transverse position and remains so, waiting will very seldom be of any use as we will not be rewarded by a spontaneous or easy delivery. It is better to terminate labor while the vertex is not impacted.

Numerous maneuvers have been devised for the handling of the occiput-posterior position. Most of them have the fault that they are safe only in the hands of the skillful obstetrician. Despite DeLee's warning, I think the Scanzoni maneuver would be the safest in the hands of the general practitioner. With careful application of the blades, and cautious, gentle rotation, very little damage should be done. A little practice with a rolled up pillow case substituting as a head, using the wife's cupped hands as a pelvis, will teach one how to rotate the forceps and keep the toes of the blades from cutting the vaginal walls. One word of warning. *Be sure the fetal head is well flexed.*

In the case of deep transverse arrest we cannot agree with Kerr that it would be better that the head be crushed rather than attempt a forceps delivery. By use of the Kielland or the Barton forceps often we have been rewarded with a happy result. These maneuvers, though, should be attempted only by the specialist under hospital conditions. For the man who is not familiar with these maneuvers, although it may be heresy to suggest it, why not turn the head back to the former posterior position and do a Scanzoni operation, or deliver the head with the occiput posterior? This suggestion does not apply to the head that descends in the so-called military attitude and remains there. That is a formidable complication and should be referred to the obstetric expert.

You notice I have not advocated manual rotation. Too often in doing this the operator pushes the head out of the mid pelvis, and, in so doing, afterwards has trouble applying the forceps. If the head is manually rotated to the anterior position and held there while uterine contractions force it down to engagement, all right. Potter recommends version on all posterior positions. It has been our experience that the membranes have been ruptured for some time, rendering the maneuver rather dangerous.

A last word about forceps. A forceps operation is an operation in the true sense of the word. It is not, as a colleague once told me, "merely putting on the 'hooks' and pulling". It demands anesthesia. The operator should have an assistant. Surgical technique is essential. Simply because the delivery is in the home is no reason for forgetting surgical principles. Hertzler in an amusing way shows us how to do this. The first principle in forceps is diagnosis. Often we are surprised at the ease in delivering a patient when the correct diagnosis is made, after having had a difficult time because of a faulty determination of the position. The second principle is application. A mere pelvic application is surely a way into difficulties. The forceps should be applied to the head in such a way that the blades are over the malar bones. The third is traction. This should be made, not straight out or up, as is so often done, but the curve of the pelvis should be followed. A forceps operation should be a deliberate procedure, thought out ahead of time and done with finesse and judgment as in any other surgical procedure. The reason Miller, Plass, McGill, and others have written numerous papers deprecating the use of forceps is because too often the "operation" is merely "putting on the hooks".

BREECH

Great truths are sometimes expressed in succint phrases. Doctor Ben Gray, when I once excitedly telephoned him saying the feet of the baby of his patient were presenting at the vulva, answered ,"So what?" He came down immediately, certainly, but he had taught me a very valuable lesson. It requires considerable poise to allow a breech case to deliver spontaneously as far as the navel without doing anything. But interference in a breech labor con-

tributes largely to the fetal mortality in these presentations—8 to 15 per cent.

There is a tendency in some of the larger obstetrical centres to interfere and deliver the baby when it is in a breech presentation (frank, complete, or footling) as soon as the cervix is fully dilated. Or if a frank breech is presenting, it has been recommended that it be broken up as soon as the diagnosis is made. We cannot subscribe to this. We believe with Arnold, something else should be done—washing the hands, straightening the drapes of the patient, talking to the onlookers, instructing the anesthetist, looking over the instruments set out, finding some fault with anything, doing anything but touching the baby. We believe in keeping our hands anywhere but on the fetus in an uncomplicated breech until the umbilicus is showing. We think, though, that an episiotomy often aids when there is delay on the perineum. In the primipara we advise routine episiotomy because, if there should be some difficulty in delivering the arms, easiness of approach and maneuver is facilitated.

In all the discussions of breech presentation reviewed by the author, external version has been advised, with no exception, when the so-called malpresentation has been diagnosed. This used to be our opinion. Many times, though, we have attempted such an external version and failed, or we have completed the maneuver only to find the former presentation at the next weekly visit. When the dangers of correction of the malpresentation, premature separation of the placenta, involvement of the cord in a dangerous position, and extreme pain are taken into consideration, we wonder if, judging from our own limited experience, external version in cases of breech presentation is the panacea we hoped it would be. And X-rays recently have shown to the author, when radiograms have been taken on suspicion, spontaneous conversion from the breach to the vertex presentation sometime occurs.

At present it is our practice to make an attempt at conversion by external rotation. If there is pain, or if the fetal heart rate changes, we desist at once. When labor begins, a careful pelvic examination is made. Any case that has a questionable pelvis is a likely candidate for Caesarean section. In multipara the history of the previous labor is most helpful.

VERSION

It was in 1550 that Pare described the advantages of podalic version. Long before this, however, the maneuver had been known and had been used. From then until now it has been, as Kerr says, "the sheet anchor of the family practitioner faced with an obstetric difficulty". At the beginning of this century it was falling into an undeserved desuetude because of the operations of Caesarean section and forceps. Then came Potter, of Buffalo. Potter, with the exception of Pare, has probably contributed more to the art of version than any one man. Yet he has contributed profoundly to the maternal and fetal mortality and morbidity in this country (Douglass). This paradox, we explain, from the popularization of the maneuver by Potter with the result that numerous obstetric attendants perform the operation for spurious indications, sometimes forgetting the contraindications. Also, not being as adept as the master, their fetal mortality must necessarily rise.

Version still holds a very valuable place in the obstetric armamentarium. For the practitioner far removed from hospitals and consultation it is a valuable procedure, even though his fetal mortality is often high. The procedure of turning, carefully and knowingly done, probably affects the infant but little. It is the breech extraction that usually is done afterwards that raises the fetal mortality to about 10 per cent. For the tyro the percentage is much higher. The prime factor, we think, causing the elevated mortality and morbidity is the substitution of haste for art while the operation is being done. We must thank Potter for teaching us this truth.

The chief risk to the mother is a ruptured uterus, particularly so if the lower uterine segment is thinned out; also, cervical lacerations are common.

In those cases having a transverse presentation, more accurately speaking oblique, version is always indicated. If the cervix is not fully dilated, extraction need not necessarily be done immediately if the fetus is in no danger. When the fetus *is* in danger, unless the patient is in a hospital under competent obstetric care, it is better to sacrifice the babe rather than attempt to save it by pulling it through an incompletely dilated cervix. A neglected transverse presentation is a real obstetric emergency and should be referred to the specialist.

Potter recommends version for all cases of posterior position. We would modify that and use it for those cases which have not engaged and which would otherwise demand a high forceps operation.

Other indications may be malpresentation, prolapse of the cord, prolapse of fetal extremities, and

placenta previa. The last indication, though, we hesitate to endorse. There are other ways of handling this complication which seem more reasonable.

DeLee says version is indicated when rapid delivery is necessary in the interest of the mother or babe when forceps are not applicable. He surely doesn't mean this to be as ruthless as it sounds.

Version is not to be taken lightly. Invasion of the uterus increases the chance of maternal morbidity. If extraction through an incompletely dilated cervix is done, mutilating and debilitating lacerations may occur.

Our remarks have been rambling and perhaps over long. If, however, they should provoke a discussion that will contribute to our knowledge of obstetric care and benefit our patients no apology need be made.

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NECESSITY OF ROUTINE RECTAL EXAMINATIONS—CASE REPORTS.*

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It cannot be stressed too often that a physical examination is not complete without digital palpation of the rectum. This warning also applies to pelvic examination in married female patients and in unmarried ones when indicated. All of us realize the necessity of such routine examinations and some have had the importance of them forcefully brought to our attention at one time or another. In spite of all this, however, we still fail routinely to use these procedures, with the result that pathology goes unrecognized, possibly to a state of incurability, or our patient seeks the advice of another physician for the relief of his or her symptoms.

Graham,[1] in a recent paper read before the Medical Society of Virginia, pointed out the importance of digital rectal examination and sigmoidoscopic examinations in all individuals complaining of changes in bowel habits, rectal bleeding, or "piles", in order to rule out the possibility of carcinoma. In his consecutive series of thirty-two cases of carcinoma of the rectum, only two were not demonstrated by digital palpation or sigmoidoscopic examination. This fact speaks more convincingly for the routine use of these diagnostic procedures than thousands of words of exhortation. Changes in the menstrual routine should also call for routine pelvic and speculum examination, the possibility of carcinoma in the genital tract being constantly borne in mind. In contrast to carcinoma of the rectum or the genital tract, many relatively benign conditions in these regions may express themselves with symptoms which are referred to other parts of the body. Abdominal pain or backache may be due to such pathology; also various types of lower extremity pain, edema of the legs or varicose veins.

It is not generally appreciated that in some cases of seminal vesiculitis[2] symptoms and signs may be referred to the abdomen; and in those instances with involvement on the right side, the picture may closely simulate appendicitis. Gonorrhoea spreading from the posterior urethra or epididymis is the usual cause of this pathology but tuberculosis or sustained and suppressed sexual excitement may be the etiological factor. When acute gonorrhoea is the cause of the pathology, there is often a co-existing epididymitis, and the fact that the abdominal symptoms and signs are referred is easily recognized. Young,[3] in a review of 218 cases of gonorrhoeal vesiculitis, however, found epididymitis present at the same time in only 142 of them. The real diagnostic problem is in those cases in which the vesiculitis is caused by sustained or suppressed sexual excitement, and, unless a digital rectal examination is routinely done, some cases will be unnecessarily exposed to operation. Rectal tenderness is elicited in many cases of appendicitis but in the cases of seminal vesiculitis one or both organs are palpated, extending upward from the prostate tender and indurated. When the diagnosis is suspected, a careful history will elicit pain radiating from the right lower quadrant down through the inguinal region along the course of the vas deferens into the scrotum and associated with testicular neuralgia. The maximum point of tenderness is usually not located at McBurney's point, it most often being closer to the midline at the same level.

The following cases illustrate the diagnostic prob-

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lem in two cases of seminal vesiculitis that had abdominal symptoms:

Case 1.—History.—A. G., a man, aged thirty-one, was seen April 8, 1938, at the request of his family physician, with the possible diagnosis of subacute appendicitis co-existing with acute gonorrhoeal urethritis. The infection had been contracted three weeks before and for the past two weeks he had been under treatment by his family physician. Sulfanilamide and rest had been the therapeutic agents. One week before he was seen, dull pain had developed in the right lower quadrant without radiation. There had been no associated nausea, vomiting, or anorexia. He had been constipated throughout the illness but had had no pain in the rectum at the time of bowel movements, or symptoms referred to the epididymis.

Examination.—The temperature was 98.8 F. No blood work was done. There was moderately acute tenderness on deep pressure in the right lower quadrant just to the left of McBurney's point. No spasm or rebound tenderness was present. On rectal examination the right seminal vesicle was palpated tender and indurated and the abdominal pain was reproduced. On this basis a diagnosis of gonorrhoeal seminal vesiculitis was made. The abdominal pain ceased with additional sulfanilamide and intravenous calcium gluconate.

Case 2.—History.—A. H., a man, aged twenty-three, seen August 24, 1938, with a provisional diagnosis of appendicitis. Three days before he had developed general abdominal pain which shortly became localized in the right lower quadrant. He had been nauseated and had vomited several times the first day of pain. The pain had been dull in character and there had been marked soreness in the right lower quadrant associated with it. No history of gonorrhoea or genito-urinary symptoms was obtained. After the true nature of the pathology was known, close questioning elicited the fact that he had had testicular neuralgia off and on since the onset of the abdominal pain and also that this pain radiated down into the scrotum at times. He had been married three years but the marriage had not been fruitful.

Examination:—The temperature was 99 F. No blood work was done. Urinalysis was essentially negative. There was fairly acute tenderness just below McBurney's point with slight rebound tenderness and moderate spasm of the right rectus muscle. There was no tenderness about the testicle or epididymis. On rectal examination the right seminal vesicle was palpated and was tender. Palpation reproduced the abdominal pain. A careful check-up by an urologist failed to reveal any infection. The symptoms and signs cleared up with sexual and physical rest.

CONCLUSIONS

1. The necessity of routine rectal and pelvic examinations is stressed.
2. Seminal vesiculitis may simulate appendicitis and the true pathology may go unrecognized without rectal examination.
3. Two cases of seminal vesiculitis that presented the possibility of appendicitis are cited.

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CORONARY THROMBOSIS—FACTORS IN IMMEDIATE PROGNOSIS.*

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Recent reports on the mortality rate in coronary thrombosis would indicate that the prognosis is much more favorable today than it was several years ago. Statistics collected in different institutions are at variance, the percentage of deaths ranging, roughly, from 20 per cent to 70 per cent. Master,[1] in a study of 267 cases, reports a general mortality rate of 16.5 per cent. Bedford[2] states that in his experience there is a 25 per cent death rate. Cooksey[3] found a mortality percentage of 40 per cent in fifty-three cases. Levine,[4] reviewing 143 records, learned that 53 per cent died. Willius,[5] reporting on the largest series of cases, namely, 370, found a mortality rate of 51.6

*From the Medical Service of the Sinai Hospital of Baltimore.

per cent. Hochrein and Schneyer[6] studied 266 cases, and discovered a 71 per cent mortality.

Assuming that all of the cases surveyed were those of occlusion of one of the main branches of the coronary arteries, not to be confused with the so-called twig thromboses, or attacks of severe and prolonged angiospasm, it is difficult to comprehend the marked differences in mortality rates as observed in various clinics. This study was undertaken not only to learn the mortality incidence at this hospital, but also to determine some of the factors which might influence the prognosis. Prolongation of pain, leucocytosis, or elevation in temperature over a period of many days, are factors which are known to bear an evil significance. The sedimentation rate has not been used at this clinic for a sufficiently lengthy period to enable us to estimate its value in prognosticating the outcome of the disease.

During the years 1928-1935, inclusive, one hundred and forty-four cases of coronary thrombosis were admitted to this clinic. Of these, seventy-seven died during the period of hospitalization, affording a general mortality rate of 53 per cent.

Single Attacks. Master[7] states that the prognosis during the first episode of coronary thrombosis is considered very good, and that a patient usually does not die in his first attack. It has been asserted that 50 per cent of cases of coronary occlusion admitted to the average hospital have had previous attacks of thrombosis. Eighty per cent of the cases studied by Willius were seen during the first attack, and of these, 47.5 per cent died. In our 144 cases, 121 did not give a history of former thrombotic accidents. Of these, there were fifty-eight deaths, or a mortality rate of 48 per cent.

Multiple Attacks. Twenty-three patients (16 per cent) had had at least one previous episode. Of these, twenty-one, or 82 per cent died. In Willius's series, 17 per cent had had two attacks, and of these, 69.8 per cent died. There was a 75 per cent mortality in those patients who had experienced three attacks.

Sex. One hundred of the 144 cases were males (70 per cent), forty-four females (30 per cent). Of the 100 males, fifty-five died, resulting in a mortality rate of 55 per cent. In the case of the females, there were twenty-two deaths, or a 50 per cent mortality. Master found the ratio of men to women experiencing coronary thrombosis three or four to one. Willius found a seven to one ratio. In the latter's study, the death rate among female patients was higher than that among the males, 63 per cent as against 50 per cent.

Age Incidence. In five of the cases, the ages were not known. The age incidence by number and per cent of the total, and mortality percentage are given in Table I:

TABLE I

Decade	*Number of Cases*	*Per Cent*	*Mortality Percentage*
20-29	1	0.7	0.0
30-39	5	3.5	20.0
40-49	18	13.0	33.0
50-59	55	40.0	54.5
60-69	43	31.0	55.8
70-79	16	11.0	81.0
80-89	1	0.7	100.0

Early Bradycardia. Attempts to ascertain the exact time of onset of the attack showed that eighty-three cases were admitted to the hospital during the twenty-four hours after the first warning. Of these, thirty patients showed bradycardia (pulse rate of seventy or lower) during the first twenty-four hours (36 per cent incidence). Fourteen of the thirty cases who had early bradycardia died, resulting in a mortality percentage of 46.6. Fifty-three patients had a tachycardia during the first twenty-four hours, and of these, thirty-four, or 64.1 per cent, died.

Antecedent Factors in Females. It has often been said that coronary thrombosis occurs most often in women who have had hypertension or diabetes previously. Of our series of forty-four female patients, thirteen (30 per cent) had had antecedent hypertension; and thirteen (30 per cent) had diabetes mellitus. Three patients (7 per cent) had had both hypertension and diabetes. Levy and Boas,[8] in their study of coronary artery disease in females, found thirty-four cases of coronary thrombosis. Twenty-two (64.7 per cent) had hypertension. One had diabetes alone (2.9 per cent). Six had hypertension and diabetes (17.6 per cent).

Antecedent Hypertension. In twenty-nine of our cases, there had been definite hypertension prior to the coronary occlusion. Eleven of these patients died, the mortality percentage being thirty-eight.

Arrhythmias. Cardiac arrhythmias seemed to have little bearing on the prognosis. In the six instances of auricular fibrillation, there was a mortality rate of 50 per cent, as three of the six patients died. In two cases in which branch bundle block occurred, both patients recovered.

Complications Leading to Death. In thirty-six of

our cases, death might have been attributed to causes other than the coronary thrombosis itself. In some of these cases, the complication led to sudden death; in others, the prognosis was considered hopeless even though exitus was delayed by therapeutic measures. The incidence of serious complications is as follows:

Massive pulmonary infarcts	5
Uremia	8
Peritoneal abscess	1
Chronic nephritis	10
Multiple infarcts	1
Bronchopneumonia	4
Gangrene of legs due to emboli	1
Active pulmonary tuberculosis	1
Bronchiectasis	1
Cerebral emboli	2
Diabetic coma	2

Cardiovascular Causes of Death. In twenty-two cases (28.6 per cent), death was due to sudden left ventricular failure, with resulting pulmonary edema. In thirty of the seventy-seven deaths (39 per cent), shock or forward failure was the precipitating factor. In ten cases (13 per cent), there was a combination of backward and forward failure.

Day of Death. Of the seventy-seven cases in which death occurred, thirty-one died on the day of admission to the hospital. A total of forty-five succumbed within forty-eight hours, exitus occurring a state of shock or pulmonary edema, or a combination of the two. In two cases, death supervened shortly after admission, with diabetic come as the complicating factor. In those cases (ten) in which death ensued after the first two weeks of hospitalization, it was the result of some of the complications listed above.

CONCLUSIONS

As a result of this survey, we are forced to conclude that the prognosis in cases of coronary thrombosis is poor, particularly, of course, in those individuals who have had a previous attack. It must be remembered that the one hundred and forty-four cases studied were instances of occlusion of one of the main branches of the coronary arteries. Those cases in which the diagnosis of coronary artery thrombosis was not definite were not included in this report.

The proportion of men to women experiencing coronary occlusion is 2.3 to 1, rather than 4 to 7 to 1, as seen in other clinics. However, the sex of the patient seemed to have little bearing on the outcome. Incidence of attacks by age decades reveals that the greatest number of occlusions occur between the ages of fifty and seventy. Willius reports a 72 per cent incidence between these age limits. The mortality rate in the earlier decades is relatively low; between the ages of fifty and seventy it is about 55 per cent, and beyond the age of seventy it rises precipitously.

The occurrence of early bradycardia, that is, within the first twenty-four hours after the onset, seems to afford a good prognosis. Although we assumed a pulse rate of seventy or lower as the margin of bradycardia, it may be stated, in accordance with reports from other hospitals, that a pulse rate of eighty or lower is an index of a favorable prognosis.

Statistics in regard to antecedent factors in females indicate that most of our patients have had either hypertension or diabetes, or both.

Antecedent hypertension, if it has any bearing at all, denotes a satisfactory outcome, according to our experience in those cases in which a definite history of high blood pressure prior to the attack could be determined.

Fifty-eight per cent of those cases who died made their exitus within forty-eight hours after admission to the hospital, usually in shock, or in shock in association with left ventricular collapse.

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Wainwright Building.

APPENDICITIS—ITS DIAGNOSIS AND TREATMENT.

GEORGE H. REESE, M.D.,
Petersburg, Virginia.

Since Dr. Reginald Fitz, of Boston, made this country appendicitis conscious in 1886, this disease has probably received more attention, caused more confusion, produced more deaths, and furnished more articles and revenue, than any other half dozen surgical diseases. One would think that any pathology so well portrayed in textbooks, and so frequently and completely presented in medical societies over such a long period of time, would, like malaria, smallpox, and typhoid, be on its way out as far as its mortality is concerned. Yet the death rate from this most common of surgical disorders is not being reduced in this country except in isolated localities.

In order to be brief it may be stated unreservedly that there are two reasons for this state of affairs, and only two—namely: purgation and delay. Ninety per cent of all patients dying of appendicitis have been purged.

It is hardly conceivable, yet there are doctors of medicine today who will prescribe a purgative for a pain in the abdomen and even repeat the prescription the following day, without knowing that his patient may have appendicitis, or else feel, though no one knows why, that all abdominal pains should be so treated. A large part of the laity also has the idea that a brisk purge is the cure for any ordinary abdominal pain, due to ascribing such up-sets to indiscretions of diet, and hoping it is nothing more serious.

There are several factors about the onset of appendicitis which, if borne in mind by the physician, should almost invariably stamp an attack of appendicitis for what it really is. These factors are found in the abdominal nerve supply of the solar plexus. All abdominal viscera derive their nerve supply from two main sources—the vagus and the sympathetic.

The vagus arises in the floor of the fourth ventricle, passes out of the skull through the jugular foramen, courses down the neck in the carotid sheath, goes through the thorax, giving off branches to the cardiac and pulmonary plexi, pierces the diaphragm and spreads out over the stomach, omentum, and probably other abdominal viscera, sending branches to the solar, renal, and splanchnic plexi.

The sympathetic consists of terminal branches supplying all of the abdominal viscera. These pass upward and are gathered into a congeries of filaments and ganglia known as the solar plexus. The great splanchnic nerves connect the solar plexus with the chains of sympathetic ganglia on each side of the spinal cord. These are connected with each other, and by both white and grey nerve fibers, with the anterior primary divisions of the spinal nerves and have their centers in the cord.

The sympathetic does not carry impulses of pain as such. Its function is purely motor and secretory. When a sympathetic center gets an impulse, it sends out a message setting up secretion or peristalsis, according to the center stimulated.

When the organism is functioning normally, this takes place without awakening consciousness. When, however, these impulses are excessive either in degree or kind, a different situation arises.

In case of an inflamed appendix, for instance, these impulses travel up the nerves that accompany the superior mesenteric vessels to the solar plexus. Here they part, some taking the pneumogastric route to the brain ,and the other part the splanchnic route to the sympathetic centers in the cord. Being an unusual impulse, it is radiated to an adjacent sensory center, and is referred by the extrinsic nerves of the body to a point on the abdomen that may be more or less removed from the focus of irritation. The brain apprehends pain, but interprets it as coming from the extrinsic sensory nerves, and not from the appendix.

As the solar plexus is a sort of pool for all abdominal impulses it would not seem strange if these messages occasionally experienced errors in transmission.

This is exactly what is thought to take place in the beginning of the average case of appendicitis.

An impulse from an inflamed appendix goes to the solar plexus. The stomach is accustomed to receiving most of these impulses. By habit it would seem, these impulses take the gastric route through the plexus to the cord, and, when referred, they are referred as coming from the stomach center.

This is why the primary pain of appendicitis always centers in the epigastrium or around the um-

bilicus. When, however, the inflammation becomes more severe and these impulses become more insistent they right themselves and seem to force their way through their proper channel. When this occurs the pain leaves the center of the abdomen and is shifted to the lower right quadrant.

This is known as the secondary pain of appendicitis.

The above, to some in this audience, may seem elementary. So do one's mistakes when viewed in retrospect. If harking back to first principles will prevent an occasional error, the effort is well undertaken.

In the average case of acute appendicitis the symptoms and signs are very definite. Its recognition depends upon four cardinal points, occurring in a definite sequence:

I. Primary pain—located in the epigastrium or around the umbilicus, later shifting to the lower right quadrant.

II. Nausea.

III. Temperature.

IV. Rigidity.

This sequence must be maintained. If nausea, fever, or rigidity precede the pain, the condition most probably is not appendicitis.

The primary pain of appendicitis is due to the early increased peristalsis which accompanies this disease.

When the stomach is irritated it strives to empty itself by increased activity. The pylorus is closed, peristalsis is set up, and nausea and vomiting take place.

These early impulses from the appendix that cause the pylorospasm, also close the ileocecal valve, blocking the contents of the small intestine that are hurled against it by this early increased peristalsis. Unable to pass, it stagnates, decomposes, and later in the disease causes gaseous distension.

The colon also receives this urge to activity and frequently empties itself; but after the lower bowel is once empty, constipation is complete.

This early pain is sharp and colicky in character and, with early bowel movement, may easily be mistaken for an ordinary stomach-ache, or food poisoning, and its true significance may be hidden until it settles in the lower right quadrant as a more or less constant ache. This settling of pain in the lower right quadrant is said to be constant, even in those cases of transposition of viscera where the appendix is on the left side.

There are many cases that apparently mark an exception to this rule; but in reality they do not. In cases of appendiceal abscess, where the parietal peritoneum is involved, the appendix is directly under the sensitive part. When the inflamed appendix touches the bladder, vesical symptoms may predominate; if it touches the gall-bladder, symptoms of cholecystitis may be present. When it rests on the genito-crural nerve, a perfect picture of renal colic may be in evidence. This is because the parietal peritoneum is irritated and, being richly supplied by sensory nerves, the pain is direct and not referred.

The nausea of appendicitis takes place early in the attack, and is quite different in cause and character from that seen later when peritonitis develops. It is evanescent and often quickly passes.

Temperature is always present at some time during an attack of appendicitis. It is a variable factor, however, and no reliance should be placed either upon its presence or absence. It may be absent or subnormal in gangrene or perforation, as well as in a case that is subsiding. The temperature is generally high in cases of marked suppuration, the pulse being elevated in proportion; but no reliance can be placed on either as an indicator of the state of inflammation.

The rigidity of appendicitis is purely a viscero-motor reflex, as described above. The tenderness over the appendiceal area is a viscero-sensory reflex, both being due to a stimulation of motor and sensory centers in the cord by unusual impulses coming from the appendix. Often when all other symptoms and signs are absent, deep seated tenderness in the lower right quadrant, whether felt externally or through the vagina or rectum may be elicited. When this is found following epigastric pain, it is almost pathognomonic of appendicitis.

To this evidence may be added leucocytosis which, however, is totally unreliable; chills, flexion of the right thigh, pinched expression of features, costal breathing, hyperesthesia of skin over the appendiceal area, and the general appearance of severe illness that has on short notice possessed the patient.

The differential diagnosis of appendicitis embraces almost every disease that can occur in the abdomen, as well as many that occur without. The more important ones are: ruptured corpus luteum, regional ileitis, mesenteric thrombosis, diverticulitis (Meckel's

and colonic), intestinal obstruction, salpingitis, pyelitis, perforating ulcers of the cecum and ascending colon, acute indigestion, typhoid fever, gastric and duodenal ulcer, carcinoma of colon, tubercular peritonitis, spermatic cord lesions, seminal vesiculitis, renal and peri-renal abscesses, pancreatitis, renal colic, hernias, tubal and ovarian diseases, plumbism, pleurisy and pneumonia, herpes zoster and hysteria. These constitute a few of the eighty odd diseases alleged to simulate appendicitis. Most of these are easy to eliminate by a careful history and examination. Some of them cannot be eliminated; but as they often indicate acute abdominal conditions of a surgical nature, too much time should not be lost in vain attempts at exact differentiation.

Osler long ago made the statement that at no time in its course is appendicitis a medical disease. There is no safe treatment for this disease except early operation,—the earlier the better. People rarely die of appendicitis. They die of its complications—gangrene, abscesses, septicemia, embolism, and peritonitis, produced solely by purgation, plus delay, or simply delay.

A word about chronic appendicitis. Whether anatomical findings or clinical speculations justify this differentiation may be debated; but therapeutic results seem to mark clearly this distinction. In cases of gross anatomical lesions, operative results are good in 94 per cent of the cases, while cures are effected in only 60 per cent of those showing only minor sclerotic change.

The symptoms said to accompany chronic appendicitis have been described as vague abdominal pain, pain on deep pressure over the appendiceal area, malaise, bilious attacks, slight icterus, hematemesis, dyspepsia, constipation, hyper- and hypo-chlorhydria, renal, vesical, and pulmonary disturbances; the latter, masked as asthma or tuberculosis, have been cured by appendectomy. The similarity in symptomatology of gastric and duodenal ulcer, cholecystitis, and chronic appendicitis is notorious. The best surgeons have operated for ulcer or cholecystitis, and completely cured the patient's symptoms by removing only a diseased appendix.

As stated above, the treatment of all forms of appendicitis is early operation. This goes for all the early complications of this disease. Remove the offending appendix, whether in abscess of diffuse peritonitis, if the condition of the pathology or patient permits. Do not risk a prolonged or traumatising operation in a case of organized abcess or diffuse peritonitis on a very ill patient.

The writer uses the grid-iron incision, ligates the appendix with chromic gut, carbolizes the stump, neutralizes it with alcohol and closes the wound with or without drainage, as pathology dictates. This is simple and effective. Subsequent treatment is morphine and fluids. The dictum for all post-operative cases should be—give them fluids and morphine, and let them rest. From a practical standpoint there is no such entity as post-operative treatment. If a case has been treated scientifically and sanely before operation, and isn't rendered moribund on the operating table, after operation the treatment is merely continued. The diabetic, tubercular, and nephritic continue their routine, the operation being only an interlude in the course of events. Any further treatment is purely symptomatic.

The same is true of peritonitis. The nature of the disease and treatment is not changed because the abdomen has been incised and a drain inserted. If the operation had not taken place the treatment would have been exactly the same. For this reason the writer has steadfastly adhered to the policy of giving his post-operative peritonitis cases practically nothing but salines with glucose and opiates, and water when tolerated. No food is allowed by mouth until bowel function is restored.

Intravenous administration is not used routinely, being reserved for the severely ill, or nauseated. Drains are used sparingly; as a rule, they are removed on the first post-operative day, unless left to produce a sinus down to irremovable necrotic tissue.

Ileus ordinarially is treated as peritonitis, described above. In mechanical ileus, an enterostomy generally produces brilliant results. In ileus of neurogenic origin it is harmful. In ileus from extended inflammation, it is largely futile. Stomach washings, and the indwelling duodenal tube are here probably superior to any other manipulations.

Prophylactic enterostomies at time of operation are seldom done. Nor is pituitrin, pitrescin, enemas, or any other form of intestinal stimulant given in any but the neurogenic type.

This paper is based on a total of 573 cases of acute and chronic appendicitis, abscesses and diffuse peritonitis.

There were a total of sixteen deaths—a mortality rate of 2.8 per cent.

In 380 cases of acute appendicitis there was one

death—a mortality rate of .26 per cent. Eighty-two cases of chronic appendicitis resulted in one death—a mortality rate of 1.22 per cent.

There were three deaths in forty-five cases of abcess—a rate of 6.67 per cent,—while sixty-five cases of diffuse peritonitis gave eleven deaths—a mortality rate of 16.09 per cent.

In conclusion, let it be recorded that no one cures peritonitis. Fortunate is the patient who has a surgeon who aids rather than hinders nature in her efforts to effect a cure. The first law of nature in inflammation is "rest".

We have seen above that in any gastro-intestinal injury the pylorus and the ileocecal valve is closed and the stomach emptied. This is nature's preparation for intestinal rest. This is the surgeon's cue. Two things promote this ideally: No food or medicine by mouth, and opiates to allay pain and peristalsis. When this line of treatment is adhered to, nature's efforts have been augmented.

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Miscellaneous

Report on Meeting of American Medical Association.

The annual meeting of the American Medical Association is always interesting, and the recent meeting in St. Louis, May 15-19, 1939, was no exception to this rule. The large Municipal Auditorium provided adequate space for housing the exhibits and also assembly halls for the meetings of many of the special sections.

The immensity of the exhibits, both commercial and scientific, was one of the outstanding features of the meeting. When one has undertaken to prepare even a small exhibit for a meeting of this type and realizes the work and expense connected with such presentation, the tremendous expense and hours of work required in preparing the hundreds of scientific exhibits become apparent. There was something pertaining to almost every field of medicine, and any physician, whether specialist or general practitioner, found much of interest. Drawings, X-ray films, moving picture presentations, practical demonstrations of all sorts, and lectures provided a never-ending source of information.

The demonstration of the rapid sectioning and staining of fresh tissue by Dr. B. F. Terry of Tacoma, Washington, was especially interesting to watch. He has presented his methods with modifications at almost every meeting of the Association during the past few years, and his enthusiasm in his work continues unbounded. Crowds of physicians were gathered around his booth at all times, watching the demonstration, taking notes, and otherwise familiarizing themselves with his methods. Such attention serves to illustrate the consciousness of the profession of the necessity for exact microscopic diagnosis.

Another interesting exhibit was that by Dr. Albert Behrend of Philadelphia on cerebral complications following surgical operation, the chief complication having resulted from cerebral anoxemia associated with general anesthesia. Although this complication is frequently thought to be the result of the employment of nitrous oxide anesthesia, half of Behrend's cases followed administration of ether.

Oxygen masks devised by Boothby, Lovelace, and Bulbulian were particularly well demonstrated, and everyone was impressed with the economy and efficiency of this method of administering oxygen.

I was able to attend only one session of the scientific program. At this meeting several subjects of interest were discussed. The treatment of peptic ulcer was again in evidence, and the general conclusion was that there was much to learn about therapy of this condition.

Another paper of special interest was "The Incidence and Results of Treatment in Subclinical Amebiasis", by Dr. Frank H. Connell (and Harry T. French) of Hanover, New Hampshire. In their study 3 per cent of all students entering Dartmouth College were found to have Endameba histolytica in the stool. Dr. Connell brought out the fact that although only 10 per cent of those infected had had significant symptoms, yet when ameba were eliminated from the stool by appropriate treatment, the general health of all the patients was greatly improved. He feels that the term, "healthy carrier", is a misnomer and that all patients harboring pathogenic ameba should have thorough treatment.

It would seem almost unnecessary for papers to be written on psychic factors in the production of

physical disability; yet a paper by Dr. Sidney A. Portis (and Jacob Kasanin) of Chicago on "Psychosomatic Factors Concerned in Recurrent Diarrhea", was enthusiastically received.

Dr. E. L. Tuohy of Duluth, Minnesota, called attention to the advisability of the intensive use of certain concentrated vitamins in the aged. His contention was that the slogan, "Men dig their graves with their teeth", needs rebuttal, and that restricted diets in patients of advanced age may be the unrecognized cause of many disabling symptoms. His paper was well illustrated by case reports.

A group of workers who remained in the background at the meeting were the delegates representing the various medical bodies throughout the nation. These men gave of their time and talent in an effort to solve the many social problems that confront American medicine today, and they deserve our gratitude and heartfelt thanks.

One of the pleasant features of a meeting as large as that of the American Medical Association is the opportunity for renewing old acquaintances and meeting some of the younger men who are taking their place in the advancement of medical science. In our critical moments we may accuse the American Medical Association of being nothing more than a big political organization; yet when one observes the volume of medical information that is brought together in one building, the scientific value of the work of this Association cannot be overestimated.

PORTER P. VINSON, M.D.

Richmond, Virginia,
May 23, 1939.

How Tumor Clinics May be Certified.

On February 16, 1939, the President of the Medical Society of Virginia appointed a Cancer Committee for the Society consisting of the following members: Dr. Edwin P. Lehman, Chairman, Dr. Richard P. Bell, Dr. I. A. Bigger, Dr. I. C. Harrison, Dr. Fred M. Hodges, Dr. Robert L. Payne, Dr. I. C. Riggin, and, *ex officio,* Dr. A. F. Robertson, Jr., and Dr. Hugh H. Trout. This Committee was formed to supervise the activities of organizations interested in the control of cancer in Virginia.

The Executive Committee of the Women's Field Army of the American Society for the Control of Cancer and the Virginia Cancer Foundation has agreed to spend funds for the care of indigent cancer patients only at institutions certified by this Committee as properly equipped and manned to give adequate treatment. It therefore became the duty of the Committee to fix standards under which certification may be possible. At a meeting of the Committee on June 1, 1939, the standards given below were adopted. It was voted (1) that the Committee recommend to the House of Delegates that these standards be adopted; (2) that they be published in the VIRGINIA MEDICAL MONTHLY; and (3) that through this publication all institutions in the State interested in qualifying be invited to present their credentials to the Committee.

The Committee recommends that cancer treatment at public expense be administered only at institutions which fulfill the following requirements:

PERSONNEL

The personnel of the Tumor Clinic shall consist of a director of surgery who has been certified by the American Board of Surgery and a director of radiology who has been certified by the American Board of Radiology. It is not essential that a pathologist be directly associated with the clinic, but evidence must be offered that the opinion of a pathologist certified by the American Board of Pathology is readily obtainable and is regularly obtained.

EQUIPMENT

The clinic must be associated with or have available a hospital registered by the American Medical Association and approved by the American College of Surgeons. There must also be available modern X-ray therapy apparatus of not less than 200,000 KV. It is not essential that radium be owned by the tumor clinic, but it should be available locally.

OPERATION

The Committee will furnish forms to each certificated clinic to be returned to the Committee for each case treated at the expense of public funds. These forms must contain written and signed surgical, radiological, and pathological opinion. Other details, such as the diagnosis, treatment, and result, will be included. If the Committee, on the basis of these reports, is not satisfied that the clinic is employing funds in a way to insure proper treatment to the patient, they will have data on which to withdraw certification.

It is requested that all groups desirous of qualifying under the above regulations submit promptly to the Chairman of the Committee evidence of their ability to meet the minimum requirements.

To qualified clinics, the Executive Committee of the Women's Field Army and the Virginia Cancer Foundation will direct indigent cancer cases for treatment at actual cost.

EDWIN P. LEHMAN, *Chairman,*
Cancer Committee,
Medical Society of Virginia.

Box 1596, University Station,
Charlottesville, Va.

Resolutions of Augusta County Medical Association Relative to the Care of the Medical Needy.

As a result of a questionnaire on The Study of Need and Supply of Medical Care, the following resolutions of the Survey Committee of the Augusta County Medical Association were unanimously adopted by that organization at a regular meeting on May 3, 1939:

RESOLVED that there is adequate and competent medical personnel in Staunton, Waynesboro and Augusta County to take care of the medical requirements of the respective communities. That the hospital facilities are adequate to provide for the hospitalization of the ordinary medical and surgical cases but that more adequate facilities are desirable to provide for colored patients and to isolate contagious diseases.

RESOLVED that it is the sense of this Society that the provision for medical and surgical and hospital care for indigent and medically needy patients is a civic responsibility and obligation. That up to the present time the communities have only in small part met this responsibility and obligation. The major portion of the economic burden for indigent and medically needy medical and surgical cases has been borne by the members of the medical profession and the King's Daughters' Hospital.

It is recommended by this Society that the Board of Supervisors of Augusta County and the City Councils of Staunton and Waynesboro devise some plan whereby sufficient fund can be raised or appropriated to provide all necessary medical, surgical and hospital care of indigent and medically needy cases of the several communities. By the term medically needy is meant those who cannot pay for medical care without sacrificing some of the necessities of life such as food, fuel or clothing.

At the present there is no one agency authorized to make comprehensive provision for medical care and hospitalization of needy, indigent and medically needy individuals. Therefore, your committee recommends the following resolution:

RESOLVED that the Augusta County Medical Society initiate a movement to establish a Central Medical Service Bureau.

THAT the Board of Supervisors of Augusta County and the City Councils and the Welfare Association and the Hospitals be requested to cooperate with the Medical Society in the organization of such a Bureau and provide the necessary facilities for its operation and that the Board of Supervisors of Augusta County and the City Councils provide the funds to finance such a Bureau.

The function of the Bureau shall be:

1. To serve as a liason between indigent and medically needy cases and the physicians, hospitals and sources of revenue.
2. To establish an investigation and records department to determine the eligibility of individuals for medical or hospital aid, this to be done with the cooperation of the Welfare and other departments.
3. To act as a clearing house for receiving and certifying all accounts rendered by the hospitals and the physicians for the indigent and medically needy.

IT IS RECOMMENDED:

That an Economics Committee of the Augusta County Medical Society be provided consisting of five members. The President and Secretary of the Society *ex officio* shall be members of this committee. The committee shall represent the Society in the formulation of any plans or projects contemplated by the several governmental bodies for the improvement of medical care. Committee action shall be subject to the approval of the Society.

IT IS RECOMMENDED:

That in lieu of a fixed appropriation to the hospitals as at present provided, the Board of Supervisors and City Councils pay a fixed maintenance charge on a per diem patient basis for each medically needy and indigent case hospitalized by authority of the County or City Governmental Agencies and through the Central Medical Service Bureau.

In view of the fact that 7,838 children in Staunton and Augusta County were reported in need of very necessary dental care to remedy existing dental defects, it is recommended that the full-time dental clinic now in operation in Augusta County be enlarged and care for the needs of the children of Staunton as well as Augusta County, the details of this plan to be worked out by the Health Departments and the School Boards.

In order to avoid duplication of activities and to secure a maximum efficiency in public health administration, your Committee urges the establishment of a joint health department of Staunton and Augusta County.

IT IS RECOMMENDED:

That copies of the above resolutions and recommendations be sent to all agencies and organizations concerned.

RICHMOND

Convention City

for

Seventieth Annual Meeting of Medical Society of Virginia

October 3, 4, and 5, 1939

The Richmond Academy of Medicine, of which Dr. Karl S. Blackwell is president, will be host to the Medical Society of Virginia at its seventieth annual convention to be held in Richmond October 3-5, with headquarters at the John Marshall Hotel. Dr. Roshier W. Miller is general chairman from the Academy, with Dr. W. Lowndes Peple as vice chairman. Other chairmen are: Dr. Lewis E. Jarrett, entertainment; Dr. William H. Higgins, hotels; Dr. E. T. Trice, finance; Dr. Lawrence T. Price, publicity; Dr. Harvey B. Haag, exhibits; Dr. T. Dewey Davis, meeting halls; Dr. E. H. Terrell, golf; Mrs. James K. Hall, arrangements for the Woman's Auxiliary.

All chairmen are busily engaged in fulfilling their respective tasks. It is felt that this will be one of the most interesting meetings of the Society, for many new ideas with regard to the program will be tested out. The committee hopes that all members will make a special effort to attend the convention this year, bringing their wives and daughters.

To tell members of the Society about the many famous shrines located in Richmond seems more or less like carrying coals to Newcastle. No doubt all are familiar with the city's brilliant history and most of them have doubtless visited the places where it was made. Nevertheless, a review of the historic places to be seen may not be out of order.

RICHMOND ACADEMY OF MEDICINE BUILDING

One of Richmond's outstanding showplaces is beautiful Capitol Square where stands the magnificent Capitol building, designed by Thomas Jefferson after the Maison Carree at Nimes. The foundation was built in 1785 and the structure completed in 1792. When more space was required, two wings were added in 1902, designed in the same Grecian style so much admired by Jefferson in France. This building is the meeting place of the oldest representative law-making body in America, and the oldest in the world established by a free people under a written constitution.

In the rotunda of the Capitol is the Houdon statue of Washington—the only one in existence today designed from life. Jefferson engaged the famous sculptor to make the statue at the request of the Virginia General Assembly. Houdon came to America and spent some time in Mount Vernon, taking measurements. He returned to Paris and completed his work in time for it to be unveiled in 1788.

Also in the Capitol building is the old Hall of the House of Delegates, the most historic room in America with the possible exception of Independence Hall in Philadelphia. In this one room the Virginia convention ratified the Articles of Secession; here Chief Justice John Marshall presided over the trial of Aaron Burr for treason; the Confederate Congress met during the war; and Robert E. Lee accepted command of the armies of Northern Virginia.

The Capitol Square is the location of the equestrian statue of Washington, executed by Thomas Crawford and cast in Munich at a cost of $100,000; the Governor's Mansion; and many monuments to Virginia's sons.

Nestling amid giant shade trees on one of Richmond's seven hills is old St. John's Episcopal Church, where Patrick Henry made his immortal

"Liberty or Death" oration. In the cemetery surrounding the quaint, white frame structure is the grave of George Wythe, first professor of the first law course offered by an American college. One of those who studied under him was John Marshall who later became third chief justice of the United States Supreme Court. Also in this cemetery is the grave of Elizabeth Arnold Poe, mother of Edgar Allan Poe. Marshall's grave is to be seen in old Shockoe cemetery. It is recalled that Charles E. Hughes, the present chief justice of that tribunal, made a special trip to the cemetery to place a wreath on the tomb of Marshall when he came to Richmond in 1931 to deliver the address incident to the unveiling of the bust of James Madison, fourth president of the United States and famed as the Father of the Constitution, in the rotunda of the capitol.

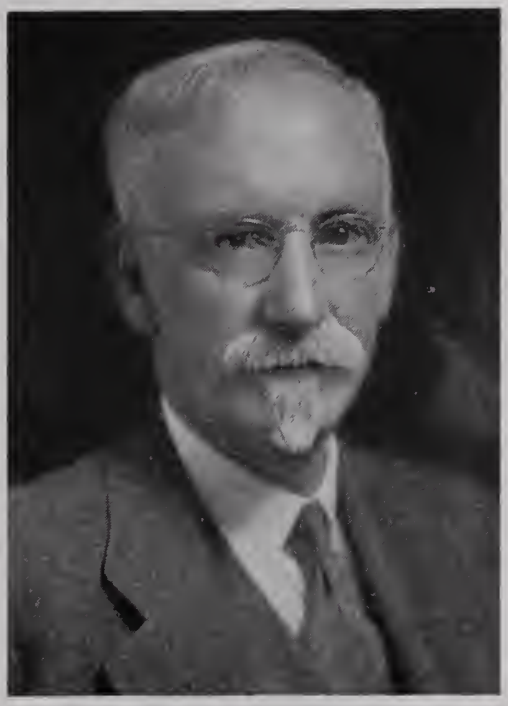
A simple exterior hides the classic dignity of the interior of the home of Marshall which he designed himself. The residence containing much of the original furniture is now the property of the Association for the Preservation of Virginia Antiquities. It is situated at the northwest corner of Ninth and Marshall streets.

The White House of the Confederacy is now the Confederate Museum—a treasure house of relics of

DR. KARL S. BLACKWELL,
President, Richmond Academy of Medicine

the War Between the States. A room is dedicated to each of the thirteen states of the Old South. On display are the uniforms, swords, camp chest and multitudinous relics of Generals Robert E. Lee, Thomas J. (Stonewall) Jackson, Joseph E. Johnston and J. E. B. Stuart. For the student, there are invaluable historical papers and files.

In bold contrast to the Confederate Museum are the new, modern buildings of the Medical College



DR. ROSHIER W. MILLER,
Chairman, Committee of Arrangements

of Virginia which are in the same section of the city. The M. C. V. is one of the oldest medical colleges in the South and the only one in the Confederacy which remained open during the entire period of the War Between the States.

It was opened in 1838 as a department of Hampden-Sidney College and has been in continuous operation since that time. In 1854 it was chartered as a separate school. Up to the time of its organization, students of the South who desired standard courses in medicine flocked to the Northern cities. The college in Richmond won early recognition and, at the approach of the War Between the States, Southern students came in increasing numbers to Richmond. To meet the demands made upon it, the faculty, in exchange for funds to increase the hospital facilities, deeded its property to the State of Virginia in 1860. As a State institution the General Assembly has appropriated for its support since 1866. Appointments to the board of visitors are made by the Governor of Virginia. The original unit of the college is an un-

usual structure. The building is said to be an almost perfect example of Egyptian architecture.

On Franklin Street in Richmond is a wooden building that is the oldest Masonic Hall in continuous use in the Nation. Lafayette was given a reception there in 1824 when he returned to visit the battlefields on which he fought during the Revolution.

Not far from this landmark is the oldest house in Richmond, erected about 1686. It has been restored and is now the Edgar Allan Poe Shrine, housing much Poe material and many articles relating to his residence in the Southern capital. In the rear of this home, that time seems unable to destroy, is the beautiful "Enchanted Garden".

MRS. JAMES K. HALL,
Chairman, Ladies' Committee

Only a few blocks away is the site of the Southern Literary Messenger Building, where Poe edited that magazine to enduring fame.

The residence of General Robert E. Lee is now the home of the Virginia Historical Society. It is an upright house, typical of many built by the wealthier Richmonders in the early nineteenth century, and contains priceless papers and many intensely interesting mementos of the war.

In the heart of Richmond's tobacco district is the site of the Libby Prison, most famous of all Confederate prisons. The old warehouse bastile, where thousands of Federal prisoners had been confined, was torn down and taken to Chicago to be rebuilt for the World's Fair in 1893.

Monumental Episcopal Church was built in 1812 on the site of one of Richmond's greatest tragedies. It stands today as a memorial to more than seventy persons, including the Governor of Virginia, who lost their lives in a fire which destroyed a theatre on December 26, 1811. It was in this same theatre that the Virginia Convention of 1788 had ratified the Federal Constitution.

Typical of the Richmond residences of the early nineteenth century is Valentine Museum, erected in 1812 by John Wickham, a leading attorney for Aaron Burr. The home contains a collection of Indian archaeology as well as many prints, casts, books and tapestry dating from 1474. Many of the works of Edward V. Valentine, Richmond's most famous sculptor, are in the Valentine Museum, including a plaster cast of the recumbent statue of Robert E. Lee.

Another place of great historic interest is Hollywood Cemetery. Two President of the United States —Monroe and Tyler—are buried there, as well as Jefferson Davis and his family, Matthew Fontaine Maury, and several Virginia Governors.

The arsenal of the Confederacy, the Tredegar Iron Works—founded in 1836—is still in operation. This foundry furnished the Southern forces with most of its cannon and shot, and rolled the plates for the *Merrimac*, the iron-clad warship of the Confederacy.

Much of the New Richmond is to be seen in the western section of the city. Beautiful Monument Avenue is lined with monuments of leaders of the Confederacy. Travelling westward, the first statue shows General J. E. B. Stuart, the great cavalry leader. Next, is a monument on which are marked only three letters—Lee. The South felt that anything else would be superfluous. This likeness of the Confederate commander, on "Traveller", was sculptured by the French artist, Jean Antoine Mercie. The Monument to Jefferson Davis shows the President of the Confederacy in the posture of oratory. Thomas J. (Stonewall) Jackson is mounted on "Sorrel". And last is the monument to Matthew Fontaine Maury, path finder of the seas.

One of the most beautiful buildings in Richmond is Battle Abbey—the Confederate Memorial Institute. An entire section of the museum is devoted to the famous murals of Charles Hoffbauer, depicting the four seasons of the War Between the States. Another section contains rare books and old newspapers.

The Virginia Museum of Fine Arts houses the John Barton Payne and Henry Strause collections of

paintings, prints and decorative arts. The museum was made possible through a donation by Judge Payne, who contributed the first $100,000 of the total cost.

The Carillon is Virginia's contribution to her dead of the World War. It towers 240 feet and contains sixty bells ranging in diameter from six feet, nine inches to six inches. On the floor of the Carillon is a museum containing relics of the world conflict.

A place of beauty is the campus of the University of Richmond. Its many classic buildings are situated among rolling, green hills and giant trees.

Among the residences that attract wide attention are Virginia House and Agecroft Hall. Virginia House was built of materials brought from Warwick Priory, Warwick, England, in 1925, by Alexander Weddell, now Ambassador to Spain. Over a window is the royal coat of arms, conferred to show that the house had given shelter to Queen Elizabeth in 1572. Agecroft Hall was erected in Lancashire, England, about 1393, and was brought to Richmond and rebuilt in 1925 by Mr. and Mrs. T. C. Williams.

So numerous are the Shrines in this section that they extend beyond Richmond's borders.

Just outside of the corporate limits are the battlefields where the Northern and Southern forces fought for months. The area has been restored by the National Park Service, so today an hour's leisurely motor trip will take visitors through the land for which thousands of heroes died. Most of the fortifications are still there—monuments to the War Between the States.

For every one attending the convention there will be ample accommodations at the John Marshall Hotel, headquarters of the convention, as well as at the Jefferson, William Byrd, Richmond, Murphy's, and Capitol Hotels.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for May, 1939, compared with the same month in 1938 follows:

	1939	*1938*
Typhoid and paratyphoid fever	13	17
Diphtheria	27	49
Scarlet fever	61	79
Measles	3,177	1,619
Meningitis	0	13
Poliomyelitis	0	1
Rocky Mountain spotted fever	3	5
Typhus fever	0	0
Undulant fever	1	2
Tularemia	4	5

INDUSTRIAL HYGIENE

For many years public health authorities have recognized that the protection of the health of industrial workers has been somewhat neglected. Within the past few years, however, increased state appropriations and government funds have provided for public health activities in the field of industrial health.

Life is shorter in the industrial population than in the general population. Industrial workers suffer more from general as well as degenerative diseases than any other group. The occupational diseases are in need of control, but improvement in the general health of workers with a reduction in lost time due to ordinary illnesses is the main goal of an industrial hygiene bureau. This can be accomplished by directing attention to unsatisfactory working environments and by indicating to employers the economy of correcting them.

There are now twenty-eight states and three cities which have augmented public health work with industrial hygiene divisions. As is known, Virginia has started activity in this field. A bureau of industrial hygiene, with a minimum personnel—a physician-director, an engineer, a chemist, and a secretary—was formed in 1936.

Surveys in the State show that a quarter of a million Virginians are employed in manufacturing and mechanical, extraction of mineral, and service industries. Only about 4 per cent of the plants in Virginia employ more than 500 workers, and about 40 per cent of the workers are employed in these larger plants. Usually, it is uneconomical for plants employing less than 500 workers to carry out an adequate medical program for employees.

The Virginia Health Department is equipped to work cooperatively with the industries in the solution of their health problems. Special equipment is available for determination of concentrations of dust,

fumes, gases, and vapors in the atmosphere; for determination of ventilation, temperatures and humidities, and lighting. The industrial hygiene bureau works with industry and with industrial physicians in the diagnosis of occupational diseases, suggests remedial measures for the elimination of health hazards of all types, is in a position to advise regarding toxicity, allowable concentrations of materials, and types of desirable control equipment.

The services of the industrial hygiene personnel are also available in assisting in the formation of joint medical services for several small plants so located geographically that such arrangement is practicable.

With the present tendency of Virginia to become more industrialized, the service of the bureau can foster the use of industry and industrial centers as units for public health activities, bridging the gap that has existed in public health service to a large portion of our adult population. By reference of cases to the family physician and by remedial activities in industrial environment, the existing life spans of industrial workers should be lengthened, and morbidity rates should be lessened to the economic advantage of industry itself and of the individual workers.

These activities of the State Department of Health can be facilitated if the local practicing physicians will report to the department cases of occupational diseases and any unusual prevalence of ordinary diseases among their patients in industry or industrial centers.

Woman's Auxiliary
to the
Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.
President-Elect—MRS. HENRY A. LATANE, Alexandria.
Corresponding Secretary—MRS. PAUL PEARSON, Aylett.
Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

Summer Greetings!

The "good ole summer time" is here in earnest with all its charm and beauty, vacation trips, bright and fragrant flowers, singing birds, homecoming graduates, visitors arriving, and all the fun and pleasure that summer brings is here; but, in spite of such pleasant scenes and the temptation to let work slide, our Auxiliary activities must go on!

Thursday, June 15, I spoke on *Aims and Opportunities Of the Auxiliary* before the Woman's Auxiliary to the Old Dominion Medical Society meeting in Richmond for its annual convention. Mrs. J. K. Hall, President of the Auxiliary to the Academy of Medicine, accompanied me on this occasion. It was a privilege to meet with this interested and well informed group of women in their cool and neatly furnished community house and to listen to their reports showing the splendid work these women are doing for their race. Many of them are laboring under difficulties such as we encounter among our groups. However, they are determined to overcome these as they continue their efforts. I wonder if under all circumstances and difficulties we are as persevering and faithful to our trust. The president of the Old Dominion Auxiliary proved herself a gracious presiding officer. She greeted us with a cordial handshake and a pleasant smile, causing us to feel at home and that we were welcomed by the entire group. She presented Mrs. W. H. Hughes, the program chairman, who presented Mrs. Hall. Mrs. Hall, at her request, introduced me as their guest speaker. I told them of the aims and possibilities of the auxiliary and of the many things, both large and small, that it might accomplish; at all times and in all places there are opportunities to promote health education, to render service to the profession of which we are an auxiliary and of the social contacts we have to make for brotherly love and which at all times has its reaction on other groups and organizations and people at large. We enjoyed the hour spent with this interesting group and we sincerely hope that our talks and suggestions we offered may prove helpful. With pleasant memories of the meeting we left to have lunch, followed by a conference on plans for our October Convention.

I hope that you may spend a pleasant and restful summer, but that you will keep on your mind and heart always our auxiliary work. Start now to make your plans to be with us in our lovely capital city on October 3, 4, 5; we have two days—4th and 5th. Many happy events await you!

Faithfully yours,
ELLIE C. CAMPBELL,
(MRS. HAWES CAMPBELL),
President.

Norfolk County.

The regular meeting of the Woman's Auxiliary to the Norfolk County Medical Society was held on May 31 in the library of the Medical Arts Building, with Mrs. Millard Savage, president, presiding.

Plans were made for an informal reception to be given the doctors following their regular meeting on June 5. This was in observance of "Doctor's Day".

The Auxiliary also decided to give scales and medical supplies to the day nursery. This action was taken as the result of a talk on the needs of the nursery by Mrs. Robert Whitehead of the W. P. A. Recreational and Service Centers.

Dr. Julian L. Rawls gave a talk on some of the diagnostic aspects of cancer and told of the work being done in the tumor clinic.

Mrs. H. W. Rodgers will be president of the Auxiliary for the coming year, and Mrs. Albert G. Horton will succeed Mrs. Rodgers as president-elect.

(MRS. BROCK D.) EUGENIA H. JONES,
Chairman, Press and Publicity.

Richmond Academy of Medicine.

The Woman's Auxiliary to the Richmond Academy of Medicine recently assisted other organizations in the presentation of a dance recital and lecture, the proceeds being used for the purchase of needed medical supplies for China.

A program meeting was held on May 25 in the Academy when Dr. Maude Woodfin, of Westhampton College, reviewed "Through Embassy Eyes". Mrs. J. B. Dalton was chairman of the afternoon. Mrs. C. P. Mangum and Mrs. Lawrence Snead presided at the punch bowls during the social hour which followed.

The Auxiliary approved the recommendation from the Board that they make a permanent endowment of linen for a cot in the Crippled Children's Hospital. So successful was the card party held recently that a substantial first payment on the pledge of $1,000 was sent.

A doll dressed as "Captain Sally Tompkins"—apparently on her way to church—was sent to represent the Richmond Auxiliary, along with dolls from other sections of Virginia, as part of an exhibit arranged by Mrs. Roy Jones, of Alexandria, who took it to St. Louis. She is planning to have this interesting "show" at the State meeting in October.

Recently some of the Auxiliary members wrote or talked to members of the City Council of Richmond asking them to vote in favor of the pending recommendation so that as a result of their voting something might be started looking towards the improving of the housing situation in this city.

(MRS. J. K.) LAURA ERVIN HALL,
President.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Lederle Laboratories, Inc.
Sulfapyridine—Lederle.
Tablets Sulfapyridine—Lederle, 0.5 Gm. (7.7 grains).

Eli Lilly & Co.
Estriol—Lilly.
Pulvules Estriol, 0.06 mg.
Pulvules Estriol, 0.12 mg.
Pulvules Estriol, 0.24 mg.

Estrone—Lilly.
Ampoules Estrone in Oil, 0.1 mg.
Ampoules Estrone in Oil. 0.2 mg.
Ampoules Estrone in Oil, 0.5 mg.
Ampoules Estrone in Oil, 1.0 mg.
Suppositories Estrone, 0.2 mg.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Ampoule Solution Sodium Morrhuate 5 per cent with Benzyl Alcohol, 2 per cent, 2 cc.—Each cubic centimeter contains sodium morrhuate (New and Nonofficial Remedies, 1938, p. 448) 0.05 Gm. (3/4 grain) and benzyl alcohol 0.02 Gm. (1/3 grain) in aqueous solution. The Upjohn Company, Kalamazoo, Mich.

Solution Sodium Morrhuate 5 per cent with Benzyl Alcohol 2 per cent, 30 cc. Vials.—Each cubic centimeter contains sodium morrhuate (New and Nonofficial Remedies, 1938, p. 448) 0.05 Gm. (3/4 grain) and benzyl alcohol 0.02 Gm. (1/3 grain) in aqueous solution. The Upjohn Company, Kalamazoo, Mich.

Ampoule Solution Sodium Morrhuate 10 per cent with Benzyl Alcohol 2 per cent, 2 cc.—Each cubic centimeter contains sodium morrhuate 0.1 Gm. (1½ grains) and benzyl alcohol 0.02 (1/3 grain) in aqueous solution. The Upjohn Company, Kalamazoo, Mich.

Solution Sodium Morrhuate 10 per cent with Benzyl Alcohol 2 per cent, 30 cc. Vials.—Each cubic centimeter contains sodium morrhuate 0.1 Gm. (1½ grains) and benzyl alcohol 0.02 Gm. (1/3 grain) in aqueous solution. The Upjohn Company, Kalamazoo, Mich.

Concentrated Antipneumococcic Serum, Types IV and VIII—Squibb.—An antipneumococcus serum types IV and

VIII combined (*The Journal,* June 18, 1938, p. 2082) prepared by immunizing horses with intravenous injections of cultures of types IV and VIII pneumococci. The serum is refined and concentrated by the method of Lloyd D. Felton. The usual sterility and safety tests are made, as required by the regulations of the U. S. Public Health Service. It is marketed in vials containing 20,000 and 50,000 units, respectively, of each type. E. R. Squibb & Sons, New York.

Concentrated Antipneumococcic Serum, Types V and VII—Squibb.—An antipneumococcus serum types V and VII combined (*The Journal,* June 18, 1938) prepared by immunizing horses with intravenous injections of cultures of types V and VII pneumococci. The horses are bled aseptically and the serum is refined and concentrated by the method of Lloyd D. Felton. The usual sterility and safety tests are made, as required by the regulations of the U. S. Public Health Service. The product is marketed in packages of one vial containing 20,000 units and 50,000 units, respectively, each of types V and VII. E. R. Squibb & Sons, New York.

Propaganda for Reform

Danger of Intra-Urethral Injection of Solutions of Local Anesthetics.—The Council on Pharmacy and Chemistry has again considered a report on local anesthetics, particularly in reference to the continued reports of severe reactions following the intra-urethral injection of solutions of various local anesthetics. The Council has long warned against the danger of such procedures. The Council points out that in this type of tragic accident often the occurrence is wholly unexpected and it may follow the injection of a much smaller amount than the same patient had previously had without notable symptoms. The Council directed that all manufacturers of Council accepted local anesthetics which may be used for intra-urethral injection be required to include a suitable warning of the dangers of the intra-urethral injection in the presence of trauma, or where it is likely to occur at the time of injection, when the present advertising is reprinted, and in any event within one year of the date of notification. (*J. A. M. A.,* April 1, 1939, p. 1256.)

Book Announcements

Life and Letters of Dr. William Beaumont. By JESSE S. MYER, A.B., M.D., Late Associate in Medicine in Washington University, St. Louis. With an Introduction by Sir William Osler, BT., M.D., F.R.S., Late Regius Professor of Medicine in Oxford University, England. The C. V. Mosby Company. St. Louis. 1939. Octavo of xxxi-327. Illustrated. Cloth. Price, $5.00.

Review appears in Editorial column.

Endocrinology in Modern Practice. By WILLIAM WOLF, M.D., M.S., Ph.D., Endocrinologist to the French Hospital; Attending Endocrinologist, Misericordia Hospital, New York City; Consulting Endocrinologist, New York University Dental School. Second Edition, Completely Revised. Philadelphia. W. B. Saunders Company. 1939. Octavo of 1077 pages. Illustrated. Cloth. Price,

Review appears in Editorial column.

Menstrual Disorders. Pathology, Diagnosis and Treatment. By C. FREDERIC FLUHMANN, B.A., M.D., C.M., Association Professor of Obstetrics and Gynecology, Stanford University School of Medicine, San Francisco, Calif.; etc. Philadelphia. W. B. Saunders Company. 1939. Octavo of 329 pages. Illustrated. Cloth. Price,

Review appears in Editorial column.

Clinics on Secondary Gastro-Intestinal Disorders: Reciprocal Relationships. By JULIUS FRIEDENWALD, M.D., Professor Emeritus of Gastro-Enterology, University of Maryland, School of Medicine; THEODORE H. MORRISON, M.D., Clinical Professor of Gastro-Enterology, University of Maryland, School of Medicine; and SAMUEL MORRISON, M.D., Assistant Professor of Gastro-Enterology, University of Maryland, School of Medicine. Baltimore. William Wood and Company. 1938. Octavo of xi-251 pages. Cloth. Price, $3.00.

The stomach has been called the "doorbell of the body". The truth of this statement is well borne out in this volume of 251 pages.

The value of this book lies chiefly in its reference possibilities. To read the book from cover to cover would be both boring and confusing. However, if the student or practitioner desires either to know all the reflex possibilities in a given gastro-intestinal complaint or, given a diagnosis, wishes to know its relationship to the gastro-intestinal tract, he has valuable and ready reference in this book. There are many references and the material is covered in a very painstaking manner.

E. B. MEWBORNE, M.D.

Hospital Service in the United States. 1939. Eighteenth Presentation of Hospital Statistics by the Council on Medical Education and Hospitals of the American Medical Association. The 1938 Census of Hospitals. Hospitals Registered by the American Medical Association. Reprinted from the Hospital Number of the Journal of the American Medical Association, March 11, 1939. Pamphlet of ninety pages. Price, 50 cents.

Toward A Healthy America. By PAUL DE KRUIF. Public Affairs Pamphlets No. 31. 1939. Published by the Public Affairs Committee, Inc. 30 Rockefeller Plaza. New York City. 32 pages. Paper. Price, 10 cents.

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Editorial

The Teaching and Practice of Therapeutics.

At the last meeting of the Association of American Physicians, Chairman Eugene F. DuBois urged a therapeutic housecleaning. He recommended that the ship of therapy be beached for a thorough removal of the barnacles of the ages. He stated that he felt sure that much rubbish needed to be swept from hospital formularies and that he thought such action an objective of major importance.

Dean W. F. Rudd of the School of Pharmacy of the Medical College of Virginia also has some ideas concerning the teaching and practice of therapeutics in the medical schools. He has communicated them to the Editor as follows:

"We have observed with growing concern the drift away from sound and broad teaching of materia medica and therapeutics in the medical schools of the country. Only recently, when we discussed this subject with the one most responsible for the making of the curriculum in one of these schools, he shrugged his shoulders and quoted Dr. Cabot to the effect that knowledge of some six drugs was quite sufficient for the successful practice of medicine.

"Naturally as a chemist, with more or less knowledge of the growing importance of chemo-therapy, and even of the gradual development through profound research of more and more specific therapy, we reviewed rather hastily the many medicaments which, whether right or wrong, are in daily use by the most successful and distinguished practitioners of medicine whose work we have been privileged to note at first hand, or through the literature in the medical field that we read fairly consistently.

"There is so little in common between the cynical observation noted above and common practice among these men that we were greatly heartened to find recently the following pronouncement on this subject in the Annual Report of Dr. Raymond B. Fosdick, President of the Rockefeller Foundation. In a chapter entitled 'Tasks Ahead for Medicine,' Dr. Fosdick discusses ruthlessly some of the weaknesses in medical teaching. One of these bears so directly upon the subject under discussion in this paper that we take the liberty of quoting it in full:

" 'In twenty-five recognized American medical schools there are no separate departments of pharmacology, the subject being combined for economic reasons with physiology or biochemistry. In many other schools where there is a division, the subject receives but meager support. This situation is doubtless responsible for the failure of pharmacology to attract recruits and for the shortage of outstanding younger men to fill professional chairs which are becoming vacant. Larger support is needed not only to promote fruitful research in this important field but also to improve the teaching on the applied side—the administration of drugs—which is notably weak in most American medical schools.'

"It would seem that wise curriculum makers in medical schools will take cognizance of the position stated by so distinguished a man. It is unlikely that he as a non-physician would have ventured into this field without having gone thoroughly into it through efficient and trustworthy advice from the medical profession itself.

"May we dare hope that out of it will come into the medical curriculum some sort of training for young physicians that will prevent their having to learn their materia medica and therapeutics from detail men who contact them so persistently and often so efficiently."

Licensed Subsidiary Nurses.

On July 31, 1939, the Sheltering Arms Hospital of Richmond will graduate fourteen "trained attendants", or nurses' helpers as they are sometimes called. These young women will have had eighteen months in the training school and will be capable of carrying out most of the practical work required of nurses. They will be licensed by the Nursing Board of the State after they have passed suitable examinations. They must then register and come up to certain prescribed standards.

It is understood that these are the first nurses of this type to be graduated from any institution in the State of Virginia. They, therefore, represent a new departure and one which we believe meets a long standing need.

There are 150,000 undergraduate nurses in the United States. Very few of them are licensed. Such irregular practitioners have been a constant threat to the traditions and ideals of the trained nursing profession. The new licensed attendants do not claim to be trained nurses and do not expect the remuneration of trained nurses and they will be controlled by the regular nursing boards. They will no doubt prove of great value in meeting the needs of the nursing care of the American people, since it is generally recognized that a shortage of nurses exists and that great masses of our people cannot pay the prevailing fees.

Trained nurses should not regard these newcomers as competitors, but rather as helpers. It is hoped that the nursing profession and the medical profession will join hands in fostering the wider production and distribution of a new service that bids fair to find a welcome for itself immediately.

On Choosing a Physician.

Though he may disguise himself as Autocrat, Poet and Professor of the Breakfast Table, Oliver Wendell Holmes is but the physician still. It is true that his perfect sanity, his mellow wit, his kind understanding and his real wisdom lifted him in his lifetime head and shoulders above the rank and file of his brother toilers, but the beauty of him is that he is not too removed for even the least of us to approach him in appreciation.

He advises his young friends on the choice of a physician in these words:

"If you are making choice of a physician, be sure you get one, if possible, with a cheerful and serene countenance. A physician is not—at least, ought not to be—an executioner; and a sentence of death on his face is as bad as a warrant for execution signed by the Governor. As a general rule, no man has a right to tell another by word or look that he is going to die. It may be necessary in some extreme cases; but as a rule, it is the last extreme of impertinence which one human being can offer to another. 'You have killed me', said a patient once to a physician who had rashly told him he was incurable. He ought to have lived six months, but he was dead in six weeks. If we will only let Nature and the God of Nature alone, persons will commonly learn their condition as early as they ought to know it, and not be cheated out of their natural birthright of hope of recovery, which is intended to accompany sick people as long as life is comfortable, and is graciously replaced by the hope of heaven, or at least of rest, when life has become a burden which the bearer is ready to let fall."

Human Hibernation.

Dr. Temple S. Fay and Dr. Lawrence S. Smith of Philadelphia exhibited at the St. Louis meeting of the American Medical Association moving pictures illustrative of a new idea in medical treatment. They showed persons undergoing what has been termed "human hibernation," a state achieved by subjecting nude patients to a pack of cracked ice in a cool room fanned by electricity. The rectal temperature drops to 89 degrees and it is said that this temperature can be maintained for four or five days after the ice is removed if the room is kept cool. Persons who submit to this procedure are said to become pleasantly drowsy and to remain so until awakened five days later with hot drinks and hot applications. They

then have no recollection of the period of treatment. During this time the heart continues to beat regularly, the metabolism slows 10 or 20 per cent, the kidneys stop functioning, the stomach and intestines quit working, and there is a general period of rest for somatic cells. Subjected to such an altered environment, bacteria seem to suffer more than the host they infect. Most promising of all it is claimed that cancer cells are not only slowed up in their growth but may afterwards show inability to grow again. This method of treatment is now being suggested as a means of arresting hopeless cancer and as the treatment of heart disease and insanity and of such bacterial diseases as tuberculosis. Like all innovations it must await the test of time. In the meantime the public should not be misled by newspaper publicity and the medical profession should go slowly in reaching its own independent conclusions.

William Beaumont's Connection with Virginia.

In the winter of 1833 Robley Dunglison, professor of physiology in the University of Virginia, was busily corresponding with an army surgeon by the name of William Beaumont. Dunglison repeatedly analyzed specimens of gastric juice obtained from the fistula in the side of Alexis St. Martin by Beaumont, and reported the presence of muriatic acid. He went to Washington to look over Beaumont's work and offered him many helpful suggestions. To this Virginia physiologist therefore must go some of the credit which Beaumont enjoys for his classical *Observations and Experiments on the Gastric Juices and the Physiology of Digestion.*

In the spring of 1838 the family of Robert E. Lee, then a Lieutenant of Engineers, arrived in St. Louis where he was at work changing the course of the Mississippi River. They found board in the home of the most successful doctor in the community, William Beaumont. In the spring of 1840 Captain Robert E. Lee, then on duty in Washington, concerned himself with the efforts of Dr. William Beaumont to get back into the Army from which he had resigned some time previously. Lee's efforts in Beaumont's behalf were disappointing, but in writing to him he concluded by saying "let me know how far matters have progressed, and whether there is anything so small a man as myself can do to shove them along." And so another eminent Virginian crossed the life of William Beaumont. Had Lee succeeded in securing his friend's reinstatement in the army, further experimentation with Alexis St. Martin's stomach might have resulted and led to other observations of lasting worth.

In 1845, twelve years after the publication of Beaumont's work on the gastric juice, Edouard Brown-Sequard was astonishing his colleagues at the Medical College of Virginia by demonstrating what the experimental method meant. Among other things he let sponges attached to strings down into his stomach in order that he might bale out gastric juice at will. By constant practice he acquired the facility, useful to his experiments, of regurgitating stomach contents when the occasion required it. Brown-Sequard's interest in the physiology of the stomach and its digestive fluid was a direct result of the pioneer experiments of Beaumont, and so again a son of Virginia and the pioneering army surgeon met.

In issuing a new print of Jesse S. Myer's *Life and Letters of Dr. William Beaumont,* C. V. Mosby Company deserves the thanks of all American doctors interested in the great achievements of one whom the International Congress of Physicians meeting in Boston in 1929 canonized as the patron saint of American physiologists.

Wolf's Endocrinology.

The second edition of William Wolf's *Endocrinology in Modern Practice* is just off the press of W. B. Saunders Company. Like many other medical books it is large, containing 1,077 pages. Like some other medical books it tends to be verbose, but on the whole this revision of a work that had already gained some popularity is impressive. It covers the usual diseases classified as endocrine, devotes considerable attention to the relation of the vitamins to the glands of internal secretion, considers in a separate section the endocrine aspects of non-endocrine diseases, and gives another section to diagnosis in which is included the interpretation of laboratory findings. Two chapters are of particular interest, one dealing with symptom diagnosis, and the other consisting of the description and dosage of commercially available endocrine products. The book is designed for the practitioner for whom it attempts to furnish "a full and usable knowledge of clinical endocrinology". One is tempted to ask do not those books which are satisfied with epitomization more nearly satisfy the desire for a useful text in a subject which is still in the stage of flux and change?

Menstrual Disorders.

Under this title C. Frederic Fluhmann (W. B. Saunders Company) discusses the pathology, diagnosis and treatment of one of the commonest complaints known in medicine. The book is clear, brief, well written and well illustrated. It deals with a subject of almost universal interest and whereas the last word has not been said the author has succeeded in packing much that is new and worth knowing into a handy monograph which deserves a place in the library of all general practitioners.

Proceedings of Societies

The Fourth District Medical Society,

A component part of the Medical Society of Virginia, held its annual meeting at Blackstone, on May 30.

The following physicians presented interesting papers: Dr. Douglas Chapman and Dr. W. Ambrose McGee of Richmond, Dr. Philip Jacobson and Dr. W. M. Bowman of Petersburg, and Dr. R. H. Manson of McKenney. Two of the papers presented were upon relatively new subjects. Dr. Jacobson discussed a new operation and Dr. Bowman gave an excellent paper on "Euthanasia", a subject which has previously not been presented to medical societies of that section but which is at the present time creating national interest.

Drs. James O'Neal of Amelia, Frank A. Dick of the Central State Hospital, Petersburg, and D. L. Harrell, Jr., of the State Colony, Petersburg, were elected to membership.

Dr. Munford Yates of Petersburg was elected president; Dr. W. M. Phipps of Hopewell and Dr. J. B. Kizer of Emporia was elected second vice-presidents. Dr. C. E. Martin of Emporia was re-elected secretary-treasurer and Dr. Wright Clarkson of Petersburg was re-elected chairman of the steering committee.

The next meeting will be held in Emporia on the last Tuesday in August.

The Rockbridge County Medical Society

Held a meeting on May 22 at the home of Dr. E. P. Tompkins, secretary, in Lexington. The president, Dr. F. L. Thurman of Buena Vista, presided. Most of the doctors of Rockbridge County attended and there were several guests: Dr. Alex. F. Robertson and Dr. Guy Fisher of Staunton, Dr. A. P. Jones of Roanoke, and the guest-speaker, Dr. H. B. Mulholland of the University of Virginia. Dr. Mulholland's subject was "Acidosis, Alkalosis and Dehydration". This was illustrated by lantern slides and freely discussed. Following the scientific program, the doctors adjourned to the dining room where light refreshments were served.

Norfolk County Medical Society.

At the annual meeting of this Society, held in June, the following officers were elected: President, Dr. Harvie S. Baker; president-elect, Dr. James W. Anderson; vice-president, Dr. D. Lee Hirschler; and secretary-treasurer, Dr. Lockburn B. Scott. Dr. Scott was re-elected to serve his 21st year. Dr. George G. Garrison was admitted as a new member.

Williamsburg-James City County Society.

On June 8, the Society held its last meeting of the season at the Providence Forge Club. Since the last semi-annual report new officers have been elected as follows: Dr. J. R. Tucker, President, Dr. T. B. Henderson, Vice-President and Dr. I. S. Zfass, re-elected Secretary and Treasurer. A new constitution and by-laws have been adopted by the society. Among the speakers at the various meetings have been: Dr. W. Gayle Crutchfield, neurosurgeon, who spoke on "Functions and Dysfunctions of the Cranial Nerves"; Dr. Paul Kimmelstiel, pathologist, who spoke on "Intercapillary Glomerular Sclerosis"; and Mr. C. D. Griffin, technician, who spoke on "Kidney Function Tests". One meeting was devoted to motion pictures, which were shown at Cameron Hall, Eastern State Hospital. Among other films shown at this meeting were the two sound films, "Diagnostic Procedures in Tuberculosis" and "Syphilis Clinic". The society will resume its regular monthly meetings in September.

I. S. ZFASS,
Secretary and Treasurer.

The Lynchburg Academy of Medicine

Held its regular meeting on June 5, with the president, Dr. S. E. Oglesby, presiding. Twenty-nine

members and four visitors were present. Dr. J. W. Devine, Jr., was elected to membership and also presented an illustrated paper on "Peripheral Vascular Disease". Delegates and alternates to the Medical Society of Virginia meeting in Richmond were elected at this meeting. The Academy voted to send telegrams to Senators and Representatives from Virginia opposing the Wagner Bill.

C. E. KEEFER,
Secretary-Treasurer.

The Southside Virginia Medical Association

Held its quarterly meeting at the Central State Hospital in Petersburg on June 13. The program was as follows: Ocular Manifestations of Systemic Diseases by Dr. H. S. Hedges, University; The Treatment of Peptic Ulcer of the Pyloric Sphincter by Dr. Guy W. Horsley, Richmond; Comparison of Continuous Drip Treatment of Peptic Ulcer with Other Methods by Dr. T. Neil Barnett, Richmond; Cancer of the Stomach by Dr. Frank S. Johns, Richmond; and The Uses of Sulphanilamide in Urology by Dr. Samuel Vest, University. There was a general round table discussion on sulphanilamide and its uses.

At the close of the program, the visiting doctors were entertained at a dinner by the Staff of the Hospital.

The next meeting will be held at Piedmont Sanatorium the second Tuesday in September. Dr. C. S. Dodd, Petersburg, is president, and Dr. R. L. Raiford, Franklin, secretary.

News Notes

Medical School Commencements.

MEDICAL COLLEGE OF VIRGINIA

The commencement exercises for the one hundred first session of the Medical College of Virginia were held June 3-6, opening with the Student Body Dance. The commencement sermon was delivered by the Reverend George Ossman, Rector of Monumental Episcopal Church.

Registration of alumni started on Monday morning and a dinner and dance were held that night. At the business meeting, Dr. W. H. Street, Richmond dentist, was elected president of the alumni association. Among the vice-presidents are Dr. C. D. Nossinger of Roanoke, and Dr. T. Neill Barnett of Richmond. Dr. T. Dewey Davis of Richmond is treasurer.

A buffet luncheon for the Board of Visitors, alumni, faculty, and senior classes was held at Cabaniss Hall on Tuesday. The final exercises were held at the Mosque that evening, at which time the commencement address was made by Dr. Otis W. Caldwell, General Secretary of the American Association for the Advancement of Science. The honorary degree of Doctor of Science was bestowed upon Dr. Walter Edward Vest, Huntington, W. Va., a graduate of the College in 1909. Graduates included sixty-one from the medical school, thirty-one from the dental, twenty-five from pharmacy, and thirty-eight from nursing. Commissions in the Officers' Reserve Corps were awarded twenty-seven of the medical school graduates. Following these exercises, the annual reception and dance was held at the John Marshall Hotel.

The following are the medical graduates with their hospital appointments:

HOSPITAL DIVISION, MEDICAL COLLEGE OF VIRGINIA, RICHMOND—Drs. Kenneth Jerome Cherry, Richmond; Beverley Boyden Clary, Richmond; Thomas Harrison Southgate Ely, Jonesville; Brainard E. Hines, Pocatello, Idaho; Gerald A. LoGrippo, Norristown, Pa.; Maurice E. Broadas Owens, Jr., Cumberland, Md.; and Catalina Scarano, Ponce, P. R.

STUART CIRCLE HOSPITAL, RICHMOND — Drs. William Perry Baker, Morgantown, W. Va.; and Casimir Francis Jaskiewicz, Buffalo, N. Y.

GRACE HOSPITAL, RICHMOND—Drs. Jose D. Coll y Cabrera, Fajardo, P. R.; Harold M. Goodman, Richmond; and James Fendall Parkinson, Jr., Richmond.

JOHNSTON-WILLIS HOSPITAL, RICHMOND—Dr. Luis Fernandez, Jr., Cabo Rojo, P. R.

ST. ELIZABETH'S HOSPITAL, RICHMOND — Dr. William H. Willis, Jr., Wilson, N. C.

CHARLESTON GENERAL HOSPITAL, CHARLESTON, W. VA.—Drs. John Woodrow Barnhart, Clendenin, W. Va.; John Wythe Hash, Elkhorn, W. Va.; Buford Wallace McNeer, Hinton, W. Va.

CHESAPEAKE AND OHIO HOSPITAL, HUNTINGTON, W. VA.—Drs. William Leman Claiborne, Ansted, W. Va.; James Beverly Thompson, Mt. Hope, W. Va.; and George Dennis Vaughan, Jr., Huntington, W. Va.

OHIO VALLEY GENERAL HOSPITAL, WHEELING, W. VA.—Drs. Ralph Morgan Buttermore, Wellsburg, W. Va.; and Harold B. Young, Hastings, W. Va.

SAINT MARY'S HOSPITAL, HUNTINGTON, W. VA.—Dr. Thomas Leon Grove, Ronceverte, W. Va.

SAINT JOSEPH'S HOSPITAL, LANCASTER, PA.—Dr. Annie Belle Bradley, Sutsien, China.

PHILADELPHIA JEWISH HOSPITAL, PHILADELPHIA, PA.—Drs. Eugenie M. Fribourg, Brooklyn, N. Y.; and Morton Guzy, Bridgeton, N. J.

WILKES-BARRE GENERAL HOSPITAL, WILKES-BARRE, PA.—Drs. Sidney Jesse Hellman, New York, N. Y.; Meredith Johnson, Fair Bluff, N. C.; and Natalie Shainess, New York, N. Y.

WOMEN'S HOSPITAL, PHILADELPHIA, PA.—Dr. Irene Levy Kossove, Richmond.

WESTERN PENNSYLVANIA HOSPITAL, PITTSBURGH, PA.—Dr. Milton Mercer Neale, Jr., Heathsville.

JEFFERSON MEDICAL COLLEGE HOSPITAL, PHILADELPHIA, PA.—Dr. John Early Stone, Bluefield, W. Va.

SAINT LUKE'S HOSPITAL, BETHLEHEM, PA.—Dr. Jack Wexler, Boston, Mass.

NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL, NEW YORK, N. Y.—Drs. Guy Hewitt Branaman, Jr., Waynesboro; and Rafael Antonio Gil y Rivera, Aibonito, P. R.

CONEY ISLAND HOSPITAL, BROOKLYN, N. Y.—Dr. Bernard Greenblat, Brooklyn, N. Y.

CUMBERLAND HOSPITAL, NEW YORK, N. Y.—Dr. Saul Krugman, New York, N. Y.

ISRAEL-ZION HOSPITAL, BROOKLYN, N. Y.—Dr. Carl Manuta, Brooklyn, N. Y.

KNICKERBOCKER HOSPITAL, NEW YORK, N. Y.—Dr. Harold I. Nemuth, Portsmouth.

BROOKLYN JEWISH HOSPITAL, BROOKLYN, N. Y.—Dr. Debora Pineles, New York, N. Y.

CITY HOSPITAL, CLEVELAND, O.—Dr. Helmut Max Dehn, Cleveland, O.

CINCINNATI GENERAL HOSPITAL, CINCINNATI, O.—Dr. James W. Humphreys, Jr., Richmond.

SAINT LUKE'S HOSPITAL, CLEVELAND, O.—Dr. Marion Fisher Jarrett, Charleston, W. Va.

BARONESS ERLANGER HOSPITAL, CHATTANOOGA, TENN.—Dr. John Reed Bumgarner, Wilkesboro, N. C.

DETROIT RECEIVING HOSPITAL, DETROIT, MICH.—Dr. Dewitt Cornell Daughtry, Clinton, N. C.

WISCONSIN GENERAL HOSPITAL, MADISON, WIS.—Drs. Arthur Binford Gathright, Jr., Dumbarton; and Avaline Norma Lancaster, Kissimmee, Fla.

SIBLEY MEMORIAL HOSPITAL, WASHINGTON, D. C.—Dr. Vaughan Harwood Link, Shenandoah Jct., W. Va.

U. S. PUBLIC HEALTH SERVICE, WASHINGTON, D. C.—Dr. Lloyd Davis Miller, Bristol.

GALLINGER MUNICIPAL HOSPITAL, WASHINGTON, D. C.—Dr. Norman Sollod, Petersburg.

MEDICAL CORPS, U. S. NAVY—Dr. Charles Francis Hudson, Richmond.

JERSEY CITY MEDICAL CENTER, JERSEY CITY, N. J.—Dr. Robert Coleman Longon, Jr., Richmond.

SAINT ANTHONY'S HOSPITAL, LOUISVILLE, KY.—Dr. Frederick Gray McConnell, Gate City.

LOUISVILLE CITY HOSPITAL, LOUISVILLE, KY.—Dr. William Jamison Robinson, Matthews, N. C.

JOHNS HOPKINS HOSPITAL, BALTIMORE, MD.—Dr. John Legerwood Patterson, Jr., Richmond.

SINAI HOSPITAL, BALTIMORE, MD.—Dr. Willard Pushkin, Huntington, W. Va.

TOURO INFIRMARY, NEW ORLEANS, LA.—Dr. E. Ling Shiuh, Canton, China.

ST. LOUIS CITY HOSPITAL, ST. LOUIS, MO.—Dr. William Massie Smethie, Richmond.

SCOTT AND WHITE HOSPITAL, TEMPLE, TEXAS—Dr. Harry Augustus Tubbs, Richmond.

OKLAHOMA STATE UNIVERSITY HOSPITAL, OKLAHOMA CITY, OKLA.—Dr. Maurice Burton Winstead, Pinetown, N. C.

REX HOSPITAL, RALEIGH, N. C.—Dr. Garland Miller Wright, Harrisonburg.

UNIVERSITY OF VIRGINIA

The University of Virginia commencement exercises for the one hundred fifteenth session were held from June 9 through the 13.

The annual meeting of the alumni was held on the 10. Also on this day were the alumni barbecue, the Phi Beta Kappa initiations, and the alumni ball. Father Edmund A. Walsh, regent of the school of foreign service in Georgetown University, Washington, preached the baccalaureate sermon on Sunday morning in Cabell Hall. In the afternoon President and Mrs. Newcomb were hosts at a reception at their

home, following which there was an organ recital in the McIntire Amphitheatre. The class of 1939 held its farewell exercises on Monday morning, at which time new trees to fill in upon the lawn were presented by the class. Governor James H. Price delivered the address at the final exercises. There was a graduating class of 420, of which fifty-one were from the school of medicine. The final ball followed these exercises.

The following are graduates from the medical school, with hospital appointments:

UNIVERSITY OF VIRGINIA HOSPITAL, UNIVERSITY—Drs. John Granville Crawford, Kilmarnock; Maynard Robert Emlaw, Richmond; Robert Ward Evans, Lynchburg; Christian Kevin Campbell Hoyle, Kittery, Maine; Bernard Kyle Mundy, Lynchburg; and Mark Early Myers, Harrisonburg.

JEFFERSON HOSPITAL, ROANOKE—Drs. John Edwin Beck, Charleston, S. C.; and Leslie Allen Faudree, Covington.

NORFOLK GENERAL HOSPITAL, NORFOLK—Drs. Garrett Gideon Gooch, III, Roanoke; Asa Wesley Graves, Lacey Springs; Lyddane Miller, Charlotte, N. C.; and Edward Barney Smith, Creeds.

U. S. MARINE HOSPITAL, NORFOLK—Dr. Stanley Howard Macht, Crewe.

ST. ELIZABETH'S HOSPITAL, RICHMOND — Dr. John Warren Montague, Roanoke.

VIRGINIA MASON CLINIC, SEATTLE, WASH.—Drs. John Dee German, Pocahontas; and John Campbell Hortenstine, Pittsburgh, Pa.

GOUVENEUR HOSPITAL, NEW YORK, N. Y.—Dr. Irving Berlin, Hampton.

NEW YORK HOSPITAL, NEW YORK, N. Y.—Drs. Robert Montgomery Bird, Jr., University; and William Clark Quinn, Crisfield, Md.

EMORY UNIVERSITY HOSPITAL, ATLANTA, GA.—Drs. Charles Alonzo Anderson, Hinton, W. Va.; and Earl Rasmussen, Jr., Roanoke.

GRADY HOSPITAL, ATLANTA, GA.—Dr. Joseph Handley Rogers, Gadsden, Ala.

U. S. MARINE HOSPITAL, BALTIMORE, MD.—Drs. Harold Meyer Boslow, Appalachia; and Malcolm Judson Ford, Pembroke.

SOUTH BALTIMORE GENERAL HOSPITAL, BALTIMORE, MD.—Dr. Henry Cleveland Hunley, Jr., Norfolk.

SINAI HOSPITAL, BALTIMORE, MD.—Dr. Sidney Bernard Clark, Norfolk.

UNION MEMORIAL HOSPITAL, BALTIMORE, MD.—Dr. Robert Lee Payne, Jr., Norfolk.

PETER BENT BRIGHAM HOSPITAL, BOSTON, MASS.—Dr. Carlton Jerome Casey, Williamsburg.

ST. LUKE'S HOSPITAL, CLEVELAND. OHIO—Dr. Samuel Ward Casscella, Prince Bay, N. Y.

CINCINNATI GENERAL HOSPITAL, CINCINNATI, OHIO—Drs. Harvey Ernest Jordan, Jr., University; and Joseph Prentis Webb, II., University.

GOOD SAMARITAN HOSPITAL, CINCINNATI, OHIO—Dr. Vincent Mazzarella, Port Chester, N. Y.

CHARITY HOSPITAL, NEW ORLEANS, LA.—Drs. Horace Milton Dalton, Norton; Robert Kennon Hancock, Cape Charles; Joseph Page Pollard, Minor; and Francis Dunnington Smith, Henderson, Ky.

MEDICAL CENTER, JERSEY CITY, N. J.—Dr. Levi Woodbry Hulley, Jr., New Brighton, S. I., N. Y.

NEWARK CITY HOSPITAL, NEWARK, N. J.—Dr. David J. Lehman, Jr., West Orange, N. J.

DUKE UNIVERSITY HOSPITAL, DURHAM, N. C.—Dr. Samuel Summerfield Lambeth, III, Bedford.

PENNSYLVANIA HOSPITAL, PHILADELPHIA, PA.—Dr. Oscar Hunter McClung, Jr., Lexington.

GERMANTOWN DISPENSARY AND HOSPITAL, PHILADELPHIA, PA.—Dr. Herbert McKelden Smith, Jr., Staunton.

MERCY HOSPITAL, PITTSBURGH, PA.—Dr. John Thurston Thornton, Wheeling, W. Va.

ST. FRANCIS HOSPITAL, PITTSBURGH, PA.—Dr. Frank Bays Wolfe, Coeburn.

GALLINGER MUNICIPAL HOSPITAL, WASHINGTON, D. C.—Dr. Claudine Moss, Clarendon.

EMERGENCY HOSPITAL, WASHINGTON, D. C.—Dr. Guy Forrest Sutton, Jr., Staunton.

ST. MARY'S HOSPITAL, HUNTINGTON, W. VA.—Dr. John Strother Pearson, Bluefield, W. Va.

WHEELING HOSPITAL, WHEELING, W. VA.—Dr. Leonidas Williams, Charlottesville.

WISCONSIN GENERAL HOSPITAL, MADISON, WIS.—Dr. Hunter Huidekeper Romaine, Petersburg.

UNIVERSITY OF OKLAHOMA HOSPITAL, OKLAHOMA CITY, OKLA.—Dr. William Richard Smart, Norfolk.

HURLEY HOSPITAL, FLINT, MICH.—Dr. Frank Joseph Strohmenger, Irvington, N. J.

U. S. NAVAL HOSPITAL—Dr. Richard Bland Williams, Norfolk.

Dr. Jordan—Dean at University of Virginia.

Dr. Newcomb, president of the University of Virginia, has announced the election of Dr. Harvey E. Jordan as dean of the Department of Medicine, to succeed the late Dr. James Carroll Flippin. Dr. Jordan has been a member of the faculty since 1907, first serving as adjunct professor, then associate professor of anatomy, as professor of histology and anatomy since 1911, and also assistant dean of the Department of Medicine for some years. He has been acting dean since the death of Dr. Flippin in February.

Additions to University of Virginia Medical Faculty.

President Newcomb of the University of Virginia has announced the following elections to the faculty of the Medical Department of the University of Virginia:

Dr. Eugene M. Landis, associate professor of medicine in the University of Pennsylvania, has been elected professor of internal medicine to fill the vacancy created by the death of Dr. J. C. Flippin. Dr. Landis will devote his entire time to teaching and research and will not engage in outside practice.

Dr. Samuel A. Vest, associate professor of urology at the Brady Institute of Johns Hopkins University, will be associate professor of urology and head of the department of urology to fill vacancy caused by death of Dr. John H. Neff. Dr. Edgar Wilson Kirby, formerly assistant to Dr. Neff, has been named assistant professor of urology and proctology.

Dr. William H. Hill of the hospital staff has been elected instructor in surgery and gynecology for one year, to take the place of Dr. William H. Parker, who will engage in special study in cancer at the Memorial Hospital, New York City.

Personnel Notes from State Health Department.

Dr. William Grossmann has been appointed as Director of the Bureau of Communicable Diseases, effective July 1, to fill the vacancy caused by the resignation of Dr. G. Foard McGinnes.

Dr. J. B. Porterfield, Health Officer of the Peninsula Health District, has been appointed Epidemiologist in the Bureau of Communicable Diseases and will report for duty on July 1.

Dr. Edward M. Holmes, Jr., Health Officer of Fairfax County, has been appointed as Director of the Division of Venereal Disease Control, effective July 1.

Dr. S. D. Gardner, formerly Health Officer of the Valley Health District, has been appointed as Assistant Director of Rural Health with headquarters in Richmond, effective July 1.

Dr. James H. Gordon, Covington, Virginia, has resigned as Health Officer of the Alleghany-Botetourt Health District, effective July 1, in order to do graduate work in venereal diseases at the Stokes Clinic, University of Pennsylvania, Philadelphia. Dr. Wyatt E. Roye has been appointed to succeed Dr. Gordon.

Dr. J. C. Neale, Jr., Health Officer of the Augusta County Health Department, Staunton, has been appointed Assistant Director of Rural Health in charge of the Southwest Health District with headquarters at Abingdon, effective July 1. Dr. V. A. Turner, formerly Health Officer of the Buchanan-Russell-Tazewell Health District, who has been on a year's leave of absence for graduate study in public health at Harvard University, has been appointed to succeed Dr. Neale.

Dr. G. C. Carpenter, formerly Health Officer of the Dickenson-Scott-Wise Health District, who has been on a year's leave of absence for graduate study in public health at the Johns Hopkins School of Public Health, has been appointed Health Officer of Fairfax County.

Dr. Thomas Scarlett, Acting Health Officer of the Nansemond-Isle of Wight-Suffolk Health District, has been appointed Health Officer of Rockingham County, Harrisonburg, effective July 1.

Dr. B. Randolph Allen, formerly Health Officer of Pittsylvania County, who has been on leave of absence for a year's graduate study in public health at the Johns Hopkins School of Public Health, has been appointed as Health Officer of the Nansemond-Isle of Wight-Suffolk Health District with headquarters at Suffolk.

Dr. W. W. Fuller, formerly Health Officer of Montgomery County, who has been on a year's leave of absence for graduate study in public health at the Johns Hopkins School of Public Health, has been appointed Health Officer of the Peninsula Health District with headquarters at Williamsburg.

Dr. John H. Bonner, Health Officer of Prince George County, has been appointed as Health Officer

of the Page-Shenandoah-Warren Health District with headquarters at Luray, effective July 1.

Dr. Francis J. Clements, Health Officer of Sussex County, has been appointed Health Officer of the Sussex-Prince George Health District with headquarters at Stony Creek, effective July 1.

Dr. C. L. Riley, Health Officer of Prince William County, has been appointed as Health Officer of the Prince William-Stafford Health District with headquarters at Manassas, effective July 1.

Dr. Philip R. Cronlund has been appointed Assistant Health Officer of Pulaski County, effective June 15.

Dr. Marvin E. McRae has been appointed Assistant Health Officer of the Brunswick-Greensville-Mecklenburg Health District.

Married.

Dr. Brooke Baylor Mallory, Lexington, of the class of '35 of the University of Virginia, Department of Medicine, and Miss Virginia Bailey Carter, Lynchburg, June 16.

Dr. Robert Hamilton Williams, Olympia, Washington, and Miss Frances Seward Anderson, Lynchburg, June 17. Dr. Williams is a graduate of the University of Virginia, Department of Medicine, in 1938. He is medical resident at the Virginia Mason Clinic in Seattle, where they will make their home.

Dr. John D. Hamner, Jr., and Miss Evelyn Shepherd, both of Richmond, June 24. He is a graduate of the Medical College of Virginia in 1935.

Dr. Claudio Rodriguez Arce, Newport News, and Miss Louise Henrietta Berger, Richmond, June 14. Dr. Rodriguez graduated from the Medical College of Virginia in 1938 and is now serving an internship in Newport News.

Dr. Ralph Judson Sykes, class of '34, Medical College of Virginia, and Miss Edith Claire Leake, June 10. Upon their return from a trip, they will reside at Weldon, N. C.

Mr. McCauley Honored.

On June 2, a surprise gift was presented Mr. J. R. McCauley, secretary-treasurer of the Medical College of Virginia, upon his completion of thirty-five years of service. The gift, a silver pitcher and goblets and a set of M. C. V. china, was presented on behalf of his friends at the school by Dr. Stuart McGuire, chairman of the executive committee of the board of visitors. Mr. McCauley was in Memorial Hospital, recovering from a leg injury, and was taken to the meeting in a wheel chair, thinking he was going to discuss plans for an alumni luncheon.

Dr. Tucker's Portrait Presented.

A portrait of Dr. David Hunter Tucker was presented to the Medical College of Virginia on June 14. Dr. Tucker came to Richmond in 1849 as professor of medicine at the Medical College of Virginia, which chair he held until 1869, and, from 1853 to 1856, he was also dean of the College. The portrait was painted by Miss Virginia Kennady, of Richmond, and was presented by Dr. Beverley R. Tucker, a great nephew.

News from the University of Virginia, Department of Medicine.

Dr. Oscar Swineford addressed the West Virginia Academy of Medicine meeting in Parkersburg, on April 4. His subject was The Diagnosis of Allergic Diseases. On May 10, he delivered a lecture before a Postgraduate Clinic in Arvonia, under the auspices of the University of Virginia Extension Division. His subject was Chronic Arthritis. On May 24, he gave a second lecture on Allergy in General Practice.

On May 13, Drs. W. E. Bray and O. R. Kelley presented a joint paper entitled Prothrombin Studies, Especially in the Newborn before the American Society of Clinical Pathologists meeting in St. Louis.

On May 10, Dr. J. M. Meredith addressed the monthly scientific meeting at the Medical College of Virginia on the subject of Brain Tumors. On June 7 he spoke before the James River Medical Society in Arvonia, on Headaches.

On May 17, Dr. E. W. Kirby addressed the Postgraduate Clinic in Arvonia, on the subject Urological Problems in Children. Dr. Staige D. Blackford discussed Gall Bladder Disease and Its Treatment.

Dr. H. B. Mulholland delivered a lecture on Carbohydrate Metabolism before a Postgraduate Clinic in Lynchburg, on May 19. On May 22, he spoke before the Rockbridge County Medical Society meeting in Lexington. His subject was Dehydration.

On June 7, Dr. W. W. Waddell, Jr., spoke before the James River Medical Society, meeting in Arvonia. His subject was Treatment of Severe Diarrhea in Infants.

Dr. Alfred Chanutin has been given a research grant of $2,500.00 from the John and Mary R. Markle Foundation for studies on pressor substances with the aid of the ultra-centrifuge.

Mr. Charles A. Stone has contributed a gift of $2,000.00 for the support of studies on the treatment of spontaneous hemorrhage in the newly born with Vitamin K by Dr. W. W. Waddell and for Dr. Chanutin's investigations of pressor substances.

Dr. Sydney Britton was awarded a research grant of $2,500.00 from the Committee on Research in Endocrinology of the National Research Council for aid in his investigations of cortico-adrenal extract.

Jefferson Medical College of Philadelphia.

The one hundred and fourteenth commencement of the College was held on June 2, at which the valedictory address was delivered by the Hon. Arthur H. James, Governor of Pennsylvania. The graduating class numbered 122, bringing the total number of graduates to 16,569. Forty-four members of the class were commissioned as First Lieutenants in the Medical Section of the Officers' Reserve Corps.

Alumni Day and Ex-Internes' Day Clinics were held on May 31 and June 1, in the Clinical Amphitheatre of the Hospital. The annual alumni dinner was held on the 1st, with 500 alumni in attendance.

News from Duke University School of Medicine.

Dr. Molly Harrover Erickson, of the Montreal Nurological Institute, recently addressed the students and staff on "Psychological Studies Upon Individuals with Organic Disease of the Central Nervous System."

On June 5, sixty-four students were graduated from the School of Medicine, twenty-three from the School of Nursing, and eighteen students and graduates of the School of Nursing received the degree of Bachelor of Science in Nursing. The following five medical school graduates were elected to Alpha Omega Alpha: John M. Douglas, Colin A. Munroe, Joseph A. C. Wadsworth, Kenneth D. Weeks and Irving B. Wexler.

Dr. Richard C. Neale,

Director of Physicians' Service Laboratories, Richmond, was elected to membership in the American Society of Clinical Pathologists, at its annual meeting in St. Louis in May.

The Association of Southern Railway Surgeons,

At the annual meeting held in Washington, D. C., in June, elected Dr. F. Webb Griffith of Asheville, N. C., president, succeeding Dr. W. H. Frampton of Charleston, S. C. It was voted to hold the 1940 convention in Charleston, S. C., in May.

Dr. Alexander G. Brown,

Richmond, was re-elected surgeon general of the General Society of Colonial Wars at its assembly in Baltimore in May.

Dr. H. B. Damron,

Class of '32, Medical College of Virginia, recently of Elizabethton, Tenn., has gone to Baltimore where he is serving a residency at the Baltimore Eye, Ear and Throat Hospital. Mrs. Damron and their daughter, Phyllis, accompanied him.

Dr. Charles R. Irving,

Of Albemarle County, has been appointed assistant to the Chief Surgeon of the Chesapeake and Ohio Railway, and he will be located in Richmond. He entered upon his duties on June 1. Dr. Irving graduated from the Medical College of Virginia in 1915, and is a retired army officer.

Dr. L. I. Hoke,

Formerly of Layland, W. Va., has moved to Nitro, W. Va., where he is engaged in general practice.

Rare Old Medical Texts.

Physicians and Medical Historians are invited to visit the summer exhibition of rare old medical texts in Hebrew, including books and manuscripts from the pens of Isaac Israeli, Maimonides, Pope John XXI, Arnold of Villanova, al-Razi, Avicenna, Nathan ben Joel Falaguera, Moses Narboni, Abraham Kaslari, and the like. These are in the Jewish Theological Seminary at Broadway and 122nd St., New York, and are on display from 10 to 5 every day except Friday and Saturday.

Dr. Linwood D. Keyser.

At the executive session of the American Urological Association held recently at White Sulphur Springs, W. Va., Dr. Keyser of Roanoke was elected as delegate to the Pan-American Congress of Urologic Surgeons, to be held at Santiago, Chile, in the spring of 1940. He will present to the South American urologists a survey of progress of the work being done in the United States and Canada with regard

to the formation of urinary stone and infection. Dr. Keyser has made numerous contributions to this subject during the past few years.

St. Elizabeth's Hospital,

Richmond, has recently published its annual report which covers the work of the hospital in its twenty-seventh year. It includes all patients admitted to the hospital, but does not include those operated upon or treated elsewhere by members of the Staff.

The first few pages give the list of publications by members of the Staff, the statistics of the School of Nursing, the Out-Patient Department, and Laboratory. This is followed by a record of the diagnosis and operation on all patients admitted. To this has been added this year a new section which clarifies and condenses the operations with reference to regions. This is a very valuable addition, especially for quick reference to the operations. The usual critical résumé of all deaths occurring during the year in the hospital is given in the last few pages.

The total number of surgical cases for 1938 was 1,138, as compared with 1,137 in 1937; total medical cases 329 in 1938, and 328 in 1937. There was an increase in the number of urological cases, 250 in 1938 as compared with 212 in 1937. There was a marked increase in the number of appendix cases, with 206 in 1938 against 165 in 1937. The number of cancer cases for 1938 was essentially the same as 1937, but there was an increased number of vaginal hysterectomies, transurethral resections and harelip repairs. The number of out-patients also increased during 1938, with a total of 3,988 as compared with 3,782 in 1937.

There was a total of forty deaths with thirty-four necropsies (85 per cent). This is a better percentage than in 1937 when necropsies were performed on only 67.3 per cent of the deaths. The total death rate for 1938 was 2.8 per cent, as compared with 3.04 per cent for 1937.

Dr. Wright Clarkson,

Petersburg, by invitation, gave a talk on "Radiology in the Diagnosis and Treatment of Malignancy", at Wake Forest, N. C., on May 29, before a joint meeting of the medical profession of North Carolina and the Medical Alumni Association of Wake Forest College.

Dr. John H. Hoskins,

Who has been studying at the New York Polyclinic Hospital for the past year, has re-opened his offices in Lynchburg, at 1112 Church Street, and will limit his practice to Urology.

This item, used in the June MONTHLY, was inadvertently printed as Dr. John H. Hopkins.

Dr. Alexander G. Brown, III,

Richmond, left the latter part of June for New York, for a visit to the World's Fair, following which he will go to Sebago Lake, Maine, where he will be resident physician at Camp Pokomoke, for the month of July.

Institute on Blood and Blood-Forming Organs.

The University of Wisconsin Medical School is to conduct an Institute for the Consideration of the Blood and Blood-Forming Organs, September 4-6, 1939. The program is to include papers and round-table discussions by European and American workers in the field of hematology.

Physicians and others who are interested are cordially invited. A detailed program may be obtained by addressing Dr. Ovid O. Meyer, Chairman of Program Committee, University of Wisconsin Medical School, Madison, Wisconsin.

Dr. Thomas Wheeldon,

Richmond, was elected to fellowship in the International College of Surgeons, the latter part of May.

Dr. H. Cantor,

Petersburg, was re-elected, on June 10, as vice-president of the combined medical, dental, architectural, engineering and undergraduate section of the Harvard Club of Virginia.

Dr. W. L. Griggs, Jr.,

Recently of St. Charles, where he was connected with the Benedict Coal Corporation, and was active in Masonic and professional affairs of that community, has moved to Gate City, where he will be engaged in general practice, having taken over the work of the late Dr. J. M. Dougherty, Jr.

Dr. and Mrs. Thomas D. Jones

Will return to their home in Richmond, early in July, after a western trip on which they visited the Grand Canyon, Los Angeles, San Francisco, Yellowstone Park, and Salt Lake City. One of their sons met them in the West and accompanied them on part of their trip.

American Medical Association.

The ninetieth annual session of the Association in St. Louis in May was a success in every way. There

was a registered attendance of 7,348 doctors, the following being those registered from Virginia:

Dr. E. L. Alexander, Newport News.
Dr. V. W. Archer, University.
Dr. Mary B. Baughman, Richmond.
Dr. William Bickers, Richmond.
Dr. W. E. Bray, Charlottesville.
Dr. Wright Clarkson, Petersburg.
Dr. Dean B. Cole, Richmond.
Dr. D. S. Daniel, Richmond.
Dr. J. W. Davis, Jr., Lynchburg.
Dr. J. H. Deyerle, Harrisonburg.
Dr. W. K. Dix, Richmond.
Dr. R. V. Funsten, University.
Dr. A. D. Hart, University.
Dr. Guy W. Horsley, Richmond.
Dr. J. Shelton Horsley, Richmond.
Dr. A. D. Hutton, Marion.
Dr. Philip Jacobson, Petersburg.
Dr. T. G. Jantz, Bedford.
Dr. Walter B. Martin, Norfolk.
Dr. R. L. Phipps, Clintwood.
Dr. Morgan B. Raiford, Franklin.
Dr. I. C. Riggin, Richmond.
Dr. M. P. Rucker, Richmond.
Dr. W. V. Rucker, Bedford.
Dr. J. W. Sayre, Newport News.
Dr. A. M. Showalter, Christiansburg.
Dr. J. S. Staley, Marion.
Dr. J. B. Stone, Richmond.
Dr. L. E. Stubbs, Newport News.
Dr. Oscar Swineford, University.
Dr. Warren T. Vaughan, Richmond.
Dr. P. P. Vinson, Richmond.
Dr. Carrington Williams, Richmond.

The American Board of Obstetrics and Gynecology

Announces that at their examinations in St. Louis, in May, 228 candidates were successful in the examinations and were certified by the Board.

At the meeting of the Board, at this time, it was found necessary to increase the application and examination fees, effective immediately, as follows: Application fee $15.00, payable upon submission of application for review by Board. Examination fee $75.00, payable upon notification to candidate of acceptance of the application and assignment for examination. Neither fee is returnable. This increase does not apply to candidates whose applications were filed prior to May 12, 1939.

The next written examination and review of case histories (Part I) for Group B candidates will be held in various cities of the United States and Canada on Saturday, December 2, 1939, at 2:00 P. M. Applications for admission to this examination must be on file in the Secretary's office not later than October 4, 1939.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

Dr. and Mrs. W. L. Harris,

Of Norfolk, will spend the months of July and August at Virginia Beach, as has been their custom for some years.

Dr. Ramon D. Garcin,

Richmond, has been re-elected as a member of the City School Board.

Dr. Lee Scott Barksdale,

Medical College of Virginia, class of '37, has been appointed director of the newly-formed Hopewell City Health Department, effective July 1. Dr. Barksdale has been serving internships at the Medical College of Virginia.

Dr. DeJarnette to be Honored.

The State Hospital Board will meet at the Western State Hospital, Staunton, on July 21, when tribute will be paid Dr. J. S. DeJarnette who for fifty years has been superintendent of the hospital. Five of Virginia's former Governors will be among the guests present.

American Association of Genito-Urinary Surgeons.

At the annual meeting of this association, held in Williamsburg, May 24-26, the following officers were elected: President, Dr. J. B. Clark, New York, N. Y.; vice-president, Dr. M. L. Boyd, Atlanta, Ga.; and secretary, Dr. Charles C. Higgins, Cleveland, Ohio.

Dr. Fred M. Hodges,

Prominent X-ray specialist of Richmond, was elected president of the American College of Radiology, at its meeting held in May.

Dr. William Parker Terry,

Class of '38, Medical College of Virginia, has located in Victoria where he will be engaged in general practice. He has recently been serving an internship at Stuart Circle Hospital, Richmond.

Deaths from Tuberculosis.

According to Dr. Kendall Emerson, Managing Director of the National Tuberculosis Association, tuberculosis still ranks as the Number One killer

for people between the ages of fifteen and forty-five, in spite of a decrease of about 6,000 in the number of deaths from this disease in 1938. Figures show that 63,332 persons died of tuberculosis in 1938 compared with 69,292 in 1937. Forty-three states and the District of Columbia reported fewer fatalities, while five states, including Virginia, showed a slight decrease.

Dr. James B. Shuler

Of the University of Virginia, Department of Medicine, class of 1935, has been transferred from New York to USS Yorktown, care of Postmaster, San Diego, California.

The American Urological Association

Met at White Sulphur Springs, W. Va., on May 29, 30, 31 and June 1. The officers of the organization are: Dr. Edgar G. Ballenger, Atlanta, Ga., President; Dr. James B. Cross, Buffalo, N. Y., President-Elect; Dr. Clyde L. Deming, New Haven, Conn., Secretary.

Among the Virginia surgeons participating in the meeting were Dr. Linwood D. Keyser, Roanoke, who was Chairman of the Scientific Exhibits Committee, and Dr. Austin I. Dodson, Richmond, who was Chairman of the Registration Committee. The scientific exhibit was the largest in the history of the organization, a feature of this being the demonstration of about fifty motion pictures, many in colors, on urologic operations.

At the executive session Dr. T. Leon Howard, Denver, Col., was elected President-Elect for the year 1940. The place of the 1940 meeting will be determined later.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Adolph, E. F.—Regulation of size as illustrated in unicellular organisms.
Allen, E.—Sex and internal secretions. 2nd edition.
Baker, S. J.—Fighting for life.
Bernal, J. D.—The social function of science.
Bernheim, B. M.—Medicine at the crossroads.
Bloomfield, L.—Linguistic aspects of science.
Bonnell, J. S.—Pastoral psychiatry.
Booth, H. S., ed.—Inorganic syntheses. vol. 1.
Cathcart, E. P.—The human factor in industry.
Clark, P. F.—Alice in virusland.
Comroe, B. I.—Internal medicine in dental practice.
Cutler & Buschke.—Cancer, its diagnosis and treatment.
Diehl & Shepard.—The health of college students.
Du Noüy, P. LeC.—Biological time.
East & Hubert.—The psychological treatment of crime.
Eppinger, H.—Die Leberkrankheiten. Allgemeine und spezielle Pathologie u. Therapie der Leber.
Furnas, J. C.—So you're going to stop smoking.
Gantt, W. H.—Russian medicine. (Clio medica XX.)
Gumpert, M.—Dunant: the story of the Red Cross.
Harris, L. J.—Vitamins and vitamin deficiencies.
Harrison, T. R.—Failure of the circulation. 2nd edition.
Haskins, C. P.—Of ants and men.
Heiser, V.—You're the doctor.
Jameson, E. M.—Gynecology and obstetrics. (Clio medica XVII.)

Medical Research Work Done.

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A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

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Ophthalmoscope (new), "Tycos" Baumometer, Stethoscope, "Imperatori" Treatment and Diagnostic Unit (used about three years), "Betz" Modern Ear, Nose and Throat Cabinet, complete with sterilizer, stool and chair, Tonsil instruments (some used two years), D'Arsonval Diathermy, Coagulation Machine, Eye Instrument Case, Sound Testers in Case, and other medical instruments and equipment found in the office of a specialist or general practitioner. Address Mrs. W. E. Fahrney, Broadway, Va. (*Adv.*)

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Obituary Record

Dr. J. M. Dougherty, Jr.

The Clinch Valley Medical Society records with profound sorrow the death of one of its younger members, Dr. J. M. Dougherty, Jr., of Gate City, on May 4, 1939. He died suddenly in his office from a heart attack.

He was a native of Scott County, and, after receiving his academic education at Randolph-Macon Academy, Emory and Henry College, and the College of William and Mary, he received his M.D. degree from the Medical College of Virginia in the year 1925.

Dr. Dougherty was a very popular young physician and had a large and rapidly growing practice. For the first five years he had been a staff member of the Holston Valley Community Hospital of Kingsport, Tenn., a member of the local Medical Society, Clinch Valley Medical Society, Medical Society of Virginia, and American Medical Association. At the time of his death he was secretary of the Scott County Medical Society.

Although busy in the general practice of medicine, he was alert in the civic welfare of the county. In the passing of Dr. Dougherty the Society and State have lost a valuable citizen.

BE IT RESOLVED that we, representing the Clinch Valley Medical Society, extend to his wife and members of his family our heartfelt sympathy.

BE IT FURTHER RESOLVED that a copy of these resolutions be sent to his wife, Mrs. Alma Turner Dougherty, one to the VIRGINIA MEDICAL MONTHLY and a copy to the *Kingsport Times*.

J. H. HAGY,
S. P. GARDNER,
W. P. GILMER,
V. W. QUILLEN,
Committee.

Dr. James Kennedy Corss,

Prominent surgeon of Newport News, died June 6, following several months of illness. He was a native of Pennsylvania and seventy years of age. Dr. Corss received his medical degree from the University of Pennsylvania in 1892, and located for practice in Newport News in 1895. He was a member of several local and national medical and fraternal organizations, and an honorary member of War Birds International for medical service at the Curtiss flying field. For over twenty years, Dr. Corss was a member of the U. S. Pension Board at Ft. Monroe. He joined the Medical Society of Virginia in 1898. Dr. Corss was also a Mason, a Shriner, an Elk and a member of the Odd Fellows. His wife died several years ago.

Resolutions on Dr. J. N. Elder.

On Thursday, the 18th of May, 1939, after a lingering illness, Dr. Jeffrey N. Elder passed from life.

Dr. Elder was born in North Carolina and was educated at Trinity College, now Duke, and took a medical course at the Medical College of Virginia, graduating in 1913. After his internship, he located in Hopewell in 1915, being one of the earliest physicians here. After practicing until 1917, he volunteered for service in the World War, and went overseas and saw a great deal of active service, being severely gassed, from which he never fully recovered.

Returning to his practice, he led a very busy life, endearing himself to his patients by his kind, gentle and sympathetic character.

IT IS HEREBY RESOLVED that this brief memorial shall be incorporated in the records of this Association and a copy sent to Dr. Elder's family, and one to *Hopewell News* and VIRGINIA MEDICAL MONTHLY.

J. C. BODOW,
T. E. ARMSTRONG,
S. B. PERRY,
Chairman.

Dr. Charles Horace Mayo,

Rochester, Minn., died of pneumonia at a Chicago Hospital on May 26, en route home from Arizona. He was seventy-three years of age. He and his brother, Dr. William J. Mayo, are internationally known in organizing the Mayo Clinic where they have dedicated their lives to the relief of physical suffering. Before his retirement in 1929, Dr. Mayo had performed thousands of operations, among them the removal of 700 cataracts from eyes. He was recognized generally as the originator of modern goiter surgery and was a pioneer in surgical treatment of the nervous system. In 1916, Dr. Mayo was president of the American Medical Association, and in 1924, president of the American College of Surgeons. His wife, six children, one of them being Dr. Charles William Mayo, and his brother survive him.

Dr. Samuel W. Price,

Scarbro, W. Va., died May 31, at the age of sixty-eight. He was a graduate of the former University College of Medicine, Richmond, in 1896. He was senior surgeon for the New River Company and a member of the West Virginia Public Health Council.

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pH	6.8-7.0	6.97
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Caloric Value: —per 100 c. c.	68.0	68.0
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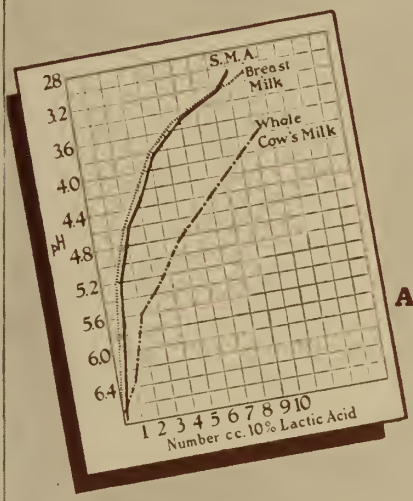

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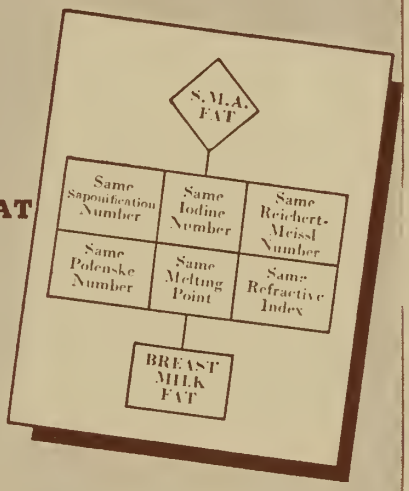

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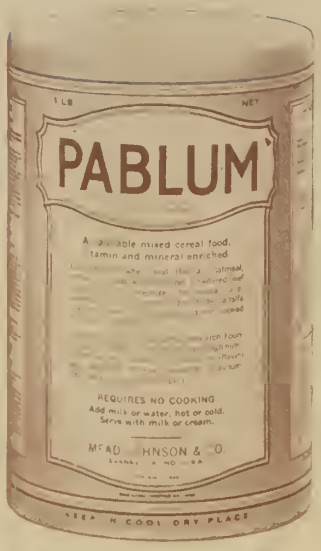

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as PABLUM

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VIRGINIA MEDICAL MONTHLY

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Vol. 66, No. 8.
WHOLE No. 1046.

RICHMOND, VA., AUGUST, 1939

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70th Annual Meeting

MEDICAL SOCIETY OF VIRGINIA

Richmond—October 3, 4 and 5, 1939

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TABLE OF CONTENTS—Advertising Page 4
INDEX TO ADVERTISERS—Advertising Page 6

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THE PATHOLOGIST LOOKS AT MEDICINE.

Frank L. Apperly, M.A., M.D., D.Sc.,
Professor of Pathology, Medical College of Virginia,
Richmond, Virginia.

It is an old saying that the onlooker sees most of the game, in the sense that he can take a more general view and perhaps make a better assessment of the game as a whole, than the individual player. In a somewhat similar way the pathologist—or at any rate the pahologist who takes all medical science as his field, and because in a sense he also sits on the side lines—is perhaps in a better position than anyone else to see what, biologically speaking, medical science really is, what it can and cannot accomplish, what the physician is really trying to do, and along what avenues medical science is likely to develop.

First, let us define our terms. By pathologist I do not mean the man who does little more than grind out reports on strange fluids or excised tissues—a sort of hand-maiden to the physician or the surgeon, however necessary these may be. The real pathologist may have to do this as part of his duties, but he is something much more. He is a scientist, who, in the field of abnormal biology, is striving to increase our knowledge of the natural history of disease and make it exact and organized. Just as our knowledge of normal man (to confine ourselves to human pathology) is for convenience divided into Anatomy, Physiology, Biochemistry and Psychology, which treat of man in his more accustomed or "normal" relationship with his environment, so we can likewise divide up our knowledge of man in his abnormal environments into Morbid Anatomy, Morbid Physiology, Morbid Biochemistry and Morbid Psychology. All of these together comprise Pathology, obviously an immense field for study. Since, in addition, it is necessary to study the varying nature of the abnormal environment—bacterial, climatic, physical, chemical, psychic, etc.—in order to understand the nature of the interaction of these forces and the individual, it will be clear that no man can cover more than a small part of the field. It now takes four professors to train the student in the four divisions under which he studies normal man. Perhaps in time pathology will likewise have its multitude of professors!

In my student days, nearly thirty years ago, pathology, of course, covered a much smaller field. It was almost wholly morbid anatomy, a depressing science of destruction—necroses, phlegmons, hemorrhagic inflammations, gangrenes, malignancies, ulcerations, cavitations, degenerations, etc.—a truly Dismal Science!

Since then our knowledge, if not our teaching, has changed. The newer knowledge of pathological physiology has brought out pathology's far more important aspect, the body's aggressiveness in overcoming its difficulties, its determined attempts to restore and maintain its equilibria or to accommodate itself to the new situation, and its ever-readiness to cooperate with the physician (in spite of centuries of frustration at his hands). Surely a splendid effort of Nature to assert herself and emerge victorious—the Science of Nature Triumphant! The Science of Hope! The emphasis must now be on the mechanisms of recovery.

My thesis is that the teaching of pathology in many of our medical schools is along wrong lines, and is failing to give the young doctor any clear conception of what he is trying to do in his battle to maintain health or restore lost health. He is being taught too much of what we might call "analytical" pathology, too much about the primary lesion, its intimate causation and the accompanying morbid changes. Analytical pathology is, of course, one of the functions of the man of research, delving for the mechanism of disease. But the student in his professional life has to deal with living men and women

and is more concerned with the reaction of the individual as a whole rather than any single tissue or organ. Perhaps we can call this "synthetical" pathology, which would include not only causation and the local reactions of the affected tissue, but also the compensatory reactions of the remaining tissues, and, finally, the reaction of the peculiar personality of the individual to his illness, the psychoneurotic behavior which so commonly complicates the clinical picture.

Perhaps I can best clarify my remarks by an example. Let us take the case of chronic nephritis. When I was a student we learned first something about its etiology—and that did not amount to much. Then the professor gave a long and dreary description of its morbid anatomy, grossly, its small size and weight, granular surface, toughness and rigidity, adherent capsule, narrow cortex, blurred structure, increased pelvic fat, and so on. Then the microscopic description, the hyalinized glomeruli, the atrophy and disappearance of some tubules, the dilatation and the minute histology of the epithelial cells of others, the increase of connective tissue, the endarteritis, and so on and on. All very pretty. But I was not told how and why these changes occurred, what further changes they produced in the body, and—most neglected, but perhaps the most important of all—how the body attempted to compensate for the loss of function of these kidneys. Consequently, when later I entered the wards and found a man with indigestion, headache, giddiness, breathlessness, failing sight, frequency, with a large volume of pale low specific gravity urine etc., etc., it all meant nothing to me. There was no connection between the morbid anatomy of the kidney and the behavior of the individual!

It has taken a long time to realize that the body is an extremely unstable system, a delicately balanced equilibrium oscillating within narrow limits, the resultant of many forces acting in various directions. To every external change, small or large, it replies with definite reactions tending to the re-establishment of its equilibrium. A constant succession of actions and reactions is taking place in the body. The study of any disease therefore involves much more than the changes occurring in an organ, but the changes, passive and reactive, occurring throughout the whole body in an attempt to re-establish equilibrium or maintain health. This "synthetical" pathology takes the whole body into consideration. Without this our studies are meaningless.

Still keeping to our case of chronic nephritis we might perhaps study the case under the following convenient divisions:

1. Nature of the injurious agent—
   Physical or chemical;
   Living (*bacteriology and parasitology*).
2. Changes produced in the affected tissues—
   (a) Passive injuries (degenerations, necroses, etc.);
   (b) Reactive effects, efforts to repair (inflammation and repair). (*Morbid Anatomy*).
3. Altered behavior of the organism—
   (a) Hypofunction of the injured organ or tissue;
   (b) Hyperfunction of the other (healthy or less affected) organs or tissues in an endeavor to re-establish equilibrium. (*Pathological Physiology*).
   (c) The mental reaction of the patient's personality to his illness and its accompanying problems. (*Morbid Psychology*).

The whole of this altered behavior constitutes *Symptomatology.*

Whereas morbid anatomy is of importance in that it helps to indicate the probable methods by which injurious agents produce their effects and enables us to explain the mechanism by which the hypofunctioning of the affected organs is brought about, it is not, I believe, of as great importance to the young student-doctor as a knowledge of the mechanism by which the other more healthy organs are trying to re-establish equilibrium by taking over the functions of the more injured organs. Thus, in chronic nephritis the loss of the glomeruli and tubules means some loss of the power of excretion. Waste products tend to accumulate within the body. But the body has other organs which can take over these excretory functions when pressed to do so. There is excretion by the skin, the lungs, the gastro-intestinal tract, the tears, and even the peritoneal, pleural and pericardial serosae revert, under stress, to their old primitive cœlomic function of excreting waste into their cavities.

Whereas the pathologist's function is the investigation of the whole consequences of abnormal environment on the organism, to the physician falls the art of applying this knowledge to diagnosis and treatment. The importance of a deep knowledge of

Nature's methods of vicarious function is therefore obvious. The recognition of the principles underlying the production of symptoms is essential for their interpretation and for diagnosis. These principles likewise form the basis of his treatment. He can best give rest to, and an opportunity for repair to take place in, the diseased organ or tissue by making use of his knowledge of Nature's compensatory mechanisms, e.g., by augmenting these vicarious activities and thus reducing the stress on the diseased tissue. In chronic nephritis this might be accomplished by the exhibition of those measures—physical, pharmacological, etc.—which increase excretion by sweating, by increased transudations from blood to intestinal lumen, and, perhaps, some day, by irrigation of the larger serous sacs.

Perhaps we can briefly summarize the principles of treatment as follows:

1. Prevention of infection, injury, etc.—
   - (a) By removing the cause, as in malaria, yellow fever, typhoid, etc.;
   - (b) By raising bodily resistance — good food, fresh air, exercise, vitamins, vaccines, etc.
2. If infection or injury has occurred—
   - (a) Measures against the causative agent—antitoxins, arsenicals in syphilis, etc.;
   - (b) Rest to the injured organ or tissue
     - i. By reduction of work—rest in heart disease, low portein diet in nephritis;
     - ii. By encouragement of compensatory mechanisms—sweating, fluids, and salines in nephritis; increasing blood flow in anemia.
   - (c) Substitution therapy—insulin in diabetes, thyroid in myxedema, blood transfusions in anemia, endocrine therapy, etc.;
   - (d) The mental aspect—suggestion, faith, discussion and creation of a better mental attitude towards life and its problems.
3. When all these are of no avail—Surgery.

So far we have dealt with the kidney alone. What about the patient himself? The good physician knows that "our remedies oft in ourselves do lie, which we ascribe to Heaven." His job is to restore, if possible, this man to equilibrium with his environment. Perhaps his patient not only has chronic nephritis, but is unemployed, in debt, with a sick wife and a young family—rather a large order of equilibrium re-adjustment for one man! But the physician, as citizen, and often an influential citizen, may be able to do a great deal, and furthermore can, by wise guidance, create such an attitude of mind in his patient as may save much unnecessary worry and mental suffering. Thus the good doctor is not only physician, but good fellow-citizen, lawyer, priest or parson, all rolled into one. All of these attributes are necessary in the physician if he is to carry out his full duty as a restorer of equilibrium with environment.

What of the pathologist himself as teacher? On him falls a very grave responsibility. Because it is he who first deals with what disease actually is, and so creates in his students the attitude of mind towards disease in living patients, the pathologist has in his hands a very large share in the shaping of the whole future of medicine. The teacher of pathology, therefore, must be much more than a tissue-pathology merchant, but a man of wide outlook, experience, wisdom, a philosopher and a man—with a sense of humor!

CANCER OF THE BREAST.*

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and
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Mortality from cancer of the breast in the registration area of the United States for 1933 was 12,484 deaths. In the District of Columbia for 1934, there were eighty-five deaths. The percentages of mammary cancer deaths was 9.7 per cent for the total registration area of the United States, and 10.8 per cent for the District of Columbia. Per 100,000 of population, the mortality was 9.9 for the United

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States, and 17.1 for the District of Columbia; or the more appalling figures, based on female population, 19.4 per 100,000 in the United States, and 32.3 in the District of Columbia (Herring).[7]

Various causes may be assigned for this monstrous affliction which besets us, chief among them being the increase in the life span, which brings more people in the period of life in which the disease is most common; secondly, and most important, is the relatively few patients who consult their physician in the early stages of the disease.

If we are to treat mammary cancer adequately and efficiently, we must have some knowledge of the types of diseases and tumors to which the female breast is heir. The benign lesions need not detain us, with the exception that we must ever remember that certain benign lesions may become cancerous (Cahill).[3] Of the malignant tumors of the breast, we may for practical purposes accept Ewing's clinical classification quoted by Christie:[4]

(1) Cystadenocarcinoma arising in cysts or large ducts. They are of slow growth and among the less dangerous of breast cancers.

(2) Medullary or encephaloid tumors which are bulky, soft, very cellular tumors.

(3) Acute carcinosis. This group is characterized by its rapid progress, with local inflammatory signs.

(4) Scirrhous carcinoma. A small, hard, acellular growth which often results in atrophy and shrinkage of the entire breast.

(5) Fibrocarcinoma is the type which arises in cases of chronic mastitis. It comes on slowly with gradual hardening of a considerable portion or even all of the breast without definite tumor formation.

For the purpose and from the standpoint of treatment, we may accept Pfahler's[4] very practical classification of stages I, II and III.

Stage I. A small, isolated, movable tumor in the breast. No palpable lymph nodes. No roentgenologic evidence of intrathoracic or skeletal metastases.

Stage II. Large tumor in the breast. Fixation of tumor to skin or pectoral muscles, with palpable axillary lymph nodes, or microscopic evidence of axillary metastases.

Stage III. Tumor in the breast with axillary lymph nodes, and supraclavicular or distal metastases.

Controversy, particularly between surgeons and radiologists has waned and waxed, and there is no immediate prospect of settlement. That there is controversy may be proof of the adage that when doctors disagree there is no collusion. It is also prima facie evidence that neither method, surgery or irradiation alone, adequately solves the problem.

Reports of so-called "five-year cures", that is, no recurrence of the disease in that time, are always interesting. In the analysis and interpretation of such figures and statistics, we should recall that properly diagnosed cases have survived more than five years without treatment of any kind, and cases have recurred up to twenty years following early and adequate diagnosis and the most radical treatment. Nor is what may be called a "cancer diathesis or predisposition" a too bizarre supposition.

Statistics on the result of treatment by irradiation, with and without surgery, are summarized in the 7th Annual Report of the National Radium Trust and Radium Commission, Great Britain, (1937)[9] as follows:

Percentage of net surival rate, five-year; from all methods of treatment, which included irradiation:

Stage of Disease	Five-Year Net Survival	Number of Cases
I	49.4%	85
II	43.7%	122
III	24.0%	196
IV	7.2%	72

Forsell,[6] of Radium hemmet, Stockholm, reports on seventy-five cases in which the treatment was surgery and post-operative irradiation. Twenty-nine per cent were alive and well five years. In forty-five cases in which pre- and post-operative irradiation was used, 40 per cent were alive and well five years. The average five-year result with surgery alone in such cases is 20 to 25 per cent. Irradiation can therefore be credited with doubling the five-year survival rate in Radium hemmet. Portmann,[13] in 1937, reported the results in eighty-five non-irradiated, and eighty-five post-operative irradiated cases. The five-year results were as follows:

Stage	I	II	III	All Cases
Surgery alone	100%	48%	0%	35%
Surgery and p.-o. irradiation	95%	71%	0%	42%

Stage I group, which comprises 30 per cent of all cases, can be cured (five-year survival) by surgery or surgery plus irradiation. Stage II group comprises 25 per cent of all cases. Half of this group, 50 per cent, will survive five years if treated surgically. Seventy-five per cent will survive five years if irradi-

ation is used in addition to surgery. Stage III group comprises advanced cases in which there was no five-year survival.[9] Irradiation therapy alone should be used in this group, the patient thereby living longer and more comfortably.

Pfahler and Vastine,[12] in 1938, reported the five-year results in 400 cases treated by surgery and irradiation. Their conclusions were that 52 per cent of cases treated by post-operative irradiation survived five years, and, further, that 57 per cent of cases treated by pre- and post-operative irradiation survived five years. They review the reports of many clinics and analyze statistics which tend to show an improvement of 11 to 73 per cent in five-year survivals when surgery and irradiation are used as compared with surgery alone. They further collected large numbers of reported cases from the literature which show a 25 per cent improvement in the combined method of treatment over operation alone.

Adair,[1] in 1937, reported his observations with particular reference to pre-operative irradiation. These were:

1. Clinical disappearance of breast tumor 60%
2. Clinical regression of axillary nodes 50%
3. Complete microscopic destruction of the tumor cells 24%
4. Sterilization of the cancer cells 17%
5. In the axillary nodes: Sterilization 6.5%
   Disintegration 9.0%

Similar experiences are reported by Bade and Badden,[2] Keynes,[8] Newton[10] and others. The consensus of opinion is that in stage I cases almost 100 per cent of five-year survivals may be obtained by surgery alone, or by surgery plus irradiation. In stage II pre-operative irradiation followed by surgery is the treatment of choice. Whether the surgery be conservative or radical will depend on the individual operator. In stages III and IV irradiation alone offers palliation and somewhat longer, more comfortable existence.

Case I, Fig. 1.—Showing bone destruction of the symphysis pubis.

The diagnosis of cancer of the breast depends upon the skill and judgment of the physician. Certain diagnostic procedures are used.

(a) Direct radiography of the breast.

(b) Mamography, in which the numerous duct outlets of the nipple are injected with an opaque medium (thorium dioxide, iodized oil, etc.).

(c) Injection of carbon dioxide subcutaneously and submammary, which throws into relief the breast tissue, enabling the roentgenologist to determine if a tumor, being present, is

1. encapsulated.
2. adherent to the skin.
3. adherent to the pectoral muscles.
4. infiltrating the breast tissue.

The ultimate diagnosis remains with the pathologist and stained serial sections. Punch biopsy is more or less a routine procedure in some clinics, but this method is not satisfactory. A specially trained and specially skillful pathologist is necessary for interpretation of findings. A negative report is of doubtful value, and irritation of a probable malignant tumor is not desirable. Various grades of malignancy and various types of cancer may be present in the same tumor; and, lastly, if any section is done, the tumor should be removed *en masse* and presented to the pathologist for gross section in order that frozen sections of the portion most probably malignant may

Case I, Fig. 2.—Showing bone regeneration of the symphysis pubis following roentgen therapy.

be studied immediately or stained serial sections studied at leisure.

In consideration of the foregoing, it is our studied opinion that the rationale of treatment of a case of suspected breast cancer should be as follows:

1. Physical examination of the breast, noting size, shape and position of tumor, density, fluctuation, attachment to skin or deeper structures; palpation of axillae, supraclavicular and cervical regions. Avoid undue manipulation so that the cancer cells will not be forced into lymph channels.

2. Radiographic examination of the breast is of value. The injection of opague media is not recommended. The use of subcutaneous and submammary carbon dioxide is of somewhat more value. There is also less potential harm in the latter method. Radiography of the lungs and bony structures is advisable to rule out metastases.

3. Pre-operative irradiation,—high voltage (200 KV), heavy filter (2.00 mm. copper),—to at least three ports and preferably five, a total dosage of two to three thousand roentgens to each port. Daily dosage two hundred to three hundred roentgens.

4. Biopsy and simple to subradical mastectomy six to eight weeks following irradiation. Post-operative irradiation if, as, and when metastases appear.

The question of sterilization has been discussed at various times since the original observation fifty years ago that a patient with breast cancer, surgically sterilized, lived longer that the usual case, showed regression of the tumor, and metastasized more slowly. The argument presented is that the function of the breasts is inhibited when the endocrine stimulus of the ovaries is removed. This reasoning does not seem illogical. Various workers espouse the cause of sterilization, others consider it of no value, and therefore not necessary. We are of the opinion that any procedure not fraught with too much danger to the patient and offering hope, scant though it be, should be given respectful consideration. In our judgment, sterilization of the patient adds to comfort and longevity by inactivating to some extent the breast tumor and the breast tissue itself.

The roentgen treatment of any malignancy is based on the fact that embryonal cells are sensitive to, and destroyed by radium and roentgen irradiation. Tumors have been graded according to the number of mitotic figures per field as—slightly radiosensitive (grade I), moderately radiosensitive (grade II), markedly radiosensitive (grade III), and very radiosensitive (grade IV) (Broder). While this classification is of value, it must not be accepted dogmatically. The radiosensitivity of any tumor is its clinical behavior after adequate irradiation.

The following case illustrates the beneficial effect of irradiation. It is a stage III case, but the protocol will show that the patient had a longer and more useful life as a direct result of roentgen therapy. Pain was relieved, crutches and canes were discarded, bone regenerated, and the patient's morale and outlook markedly improved.

V.M., white female, aged forty-three, had pre-operative irradiation and radical right mastectomy in April, 1935. Microscopic diagnosis: adenocarcinoma. In November, 1936, patient returned on crutches for examination. There was no evidence of recurrence in the scar of the right breast, in the right axilla, or the right supraclavicular or cervical regions. The left breast showed a definite tumor which was thought to be primary, though, in view of her history, metastatic involvement could not be eliminated. Roentgen studies of the skeleton showed extensive destruction of ischium and pubis bilaterally. Deep roentgen therapy was immediately instituted to the left breast and pelvis.

Examination June 15, 1937, showed the areas in the ischium and pubis and the areas adjacent to the right acetabulum previously destroyed by metastatic carcinoma to be almost completely filled in with regenerated new bone. The left breast showed no evidence of tumor, though the nipple was still retracted. No glands were palpable in the left axilla. The patient had discarded her crutches, walked with one cane, felt well, and was particularly anxious to drive her car.

While this case is presented to illustrate regeneration of bone following irradiation, it is germane to state that she died the following year (1938) of generalized carcinoma. Clarkson and Barker[5] report a case of five-year cure of mammary cancer with multiple metastases to bone, so that while the prognosis is always unfavorable no case is entirely hopeless.

We may summarize that in the present state of our knowledge, the most successful treatment of cancer of the breast is that in which the patient is thoroughly irradiated before operation, subjected then to a subradical mastectomy and irradiated post-operatively if, as and when indicated.

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RELATION OF DEGENERATIVE DISEASES TO INDUSTRIAL EFFICIENCY.*

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In presenting this subject I do not expect to explode any theories or offer any solution of the problem, but, by its presentation, hope to stimulate some thought along biological lines.

Since every practitioner of medicine, regardless of his specialty, is daily contacting those patients whose age, in body, is out of proportion with their age in years and, as degenerative diseases or those disorders characterized by hypertension, organic cardiac arrhythmias, angina pectoris, coronary thrombosis, weakness of the heart muscle, arteriosclerosis and sclerosis of the kidney are now so common, it behooves us as physicians to be alert in the detection of them even when we are consulted for only minor and trivial disorders. Unmistakable evidence of degeneration is noted in many industrial employees whom we minister to for only minor injuries.

We have discussed and collaborated at great length and with much seriousness and with great wisdom, but despite all our efforts to unravel the mysteries of this progressive train of symptoms, we are still at a loss to know what causes degenerative diseases and therefore we have no receipt for their prevention. Those who use neither alcoholic beverages nor tobacco emphatically state that the use of these commodities causes a person to deteriorate more rapidly. The biological chemist then comes along and states that he finds no scientific evidence to support the theory that whiskey or tobacco plays any part in the causation of arteriosclerosis, nephritis or myocarditis. While the argument goes on, both the non-users and users succumb to the malady in about equal proportions. The thermocouple apparently shows that the use of tobacco in both users and non-users produces a peripheral vaso-constriction with a reduction of surface temperature, which constriction, if persisted in, might theoretically produce some permanent damage to the arteriole walls, causing a sclerosis and an increased peripheral resistance with a resulting hypertension. Where there is no demonstrable local or systemic pathology in the blood vessels or kidney, the mechanical explanation of hypertension is hard to accept, and does not explain cases of malignant hypertension.

It is hard to determine whether the kidney involvement is only a part of the sclerosing process or is primary, and the arteriosclerosis then results from

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the stretching of arteries with resulting sclerosis. The layman, and sometimes his medical adviser, attaches great importance to a rise in blood pressure when that increase may be compensatory and may be useful in making up for the loss of glomerular filtering surface.

We frequently see cases which have led an exemplary life and have never used any of the abovementioned poisons, have always lived moderately but well and have not apparently eaten to excess, and in a routine examination, to our surprise, we discover that they have considerable hypertension. We run across families in which nearly every member exemplifies this premature degeneration and deterioration and explain it by saying that they have inherited poor tubing and vascular material.

That statement does not explain anything to an inquiring mind, and when we ask "why," the answer is lost in conversation. We occasionally see several albino children in the same family with deficient pigmentation in the iris, hair, and skin, and deficient mentality associated with a malignant hypertension and wonder whether the hypertension is also an inherited deficiency of that hypothetical substance, which, by its specific action, stabilizes or neutralizes that pressor substance in the blood and thereby maintains normal arterial tension.

Aschheim, Zondek, Novak and others have worked out in an understandable manner some of the mysteries of the internal secretions of the female, but, so far, man has been left largely alone to work out his own salvation. As man and woman are of the same biological species and are governed by the same laws of nature except for the activities of their specific internal secretions, could not some of the hypertensions coming on in men about the mid-period of life be due to disorders of internal secretions the same in the male as in the female? I firmly believe that some enthusiastic biological chemist, who would painstakingly study degenerative diseases with the thoroughness that characterized the work on insulin, could add materially to our knowledge of these disorders and it might be possible to discover the specific toxin or toxins causing this group of symptoms. I am inclined to believe that the etiological factor in hypertension is either the production of normal or abnormal waste products by the host, the slow absorption and slower elimination of normal metabolic products or some abnormality in the endocrine system. May the world soon give us a man who can isolate and measure these normal and abnormal metabolic and toxic products!

No consideration of degenerative diseases would be complete without at least a cursory consideration of those hypothetical, and in some cases proven little catalytic agents commonly called vitamines. Six definite and specific vitamines have been identified and fairly universally accepted as performing some useful bodily function. They are vitamins A, B_1, B_2 (G), C, D, and E, and there are eight (8) minerals that exert a beneficial influence, namely, calcium, phosphorus, iron, copper, manganese, magnesium, iodine and zinc. Copper acts as catalyst with iron in stimulating hematopoiesis, and zinc is found in insulin and improves its efficiency.

The League of Nations Health Committee reported that "The deficiencies of modern diets are usually in the protective foods (i.e., foods rich in minerals and vitamins) rather than in more strictly energy-bearing foods (calories)." The tendency is for people to eat energy-producing foods to the exclusion of protective foods. Someone has gone so far as to say that vitamine C prevents arteriosclerosis. Vitamine deficiency does produce pathological states and degenerative diseases are associated with vitamine deficiency disorders. It does not seem logical to assume that the vitamine deficiency is always a natural consequence or a complication superimposed on a long standing degenerative disease, for, in the light of our present knowledge, it seems logical to assume that as vitamine deficiencies are found before the development of degenerative disorders, they might sometimes be the fore-runner and the end-result of such vitamine deficiency.

As advanced degenerative disease in arteries and kidneys is frequently associated with calcification, could this calcification be due to excess activity of vitamine D associated with a normal or abnormal amount of blood calcium? I do not know. Lobbe and Heintz say that arterial obliteration in diabetes is caused by localization of cholesterol in the tunica intima of the arteries. Joslin says it is probably caused by faulty fat metabolism. Others state cholesterol in the diet predisposes to arteriosclerosis. A confrere reported an advanced case of arteriosclerosis with arcus senilis at forty-nine in an individual whose main article of diet for years had been eggs. It seems that some thought toward revising the diet of diabetics and others with regard to the cholesterol content is certainly indicated.

We, as physicians, are supposed to advise our patients how to live so that they may round out a long useful life without premature degeneration, but the fact that our profession stands high in furnishing mortality statistics in cardiac and arterial accidents, makes us realize that the secrets of longevity are almost as obscure now as in the days of Ponce de Leon. William Mayo said that coronary disease is an increasing factor in the death-rate among physicians, surgeons and other professional men, explainable on the theory of high tension living and sedentary life. As the causes are obscure and many cases are well developed at the time of our first examination, our only hope is in delaying, by sensible advice, and by the use of a few properly selected drugs, the progress of the disorder. The obscure and latent pathology of the myocardium and coronary arteries is so difficult in their detection by ordinary office examination methods of the average physician, until more simple and less expensive apparatus is discovered for their detection, many cases will still go unrecognized at a time when something might be done for their comfort and prolongation of life. When you examine a patient in your office and find nothing especially wrong, and upon his arrival home you are summoned to see him and, upon your arrival, you find him lying dead on the floor, you have to assume that you were either too dumb to know his true condition or ordinary methods of accurate diagnosis are markedly inadequate and primitive.

Every person who uses his hands and physical strength for a livelihood is dependent on his physical well-being for a continuation of his gainful and profitable employment. When this is impaired his productivity is correspondingly reduced to the detriment and expense of his employer. Under our American system of mass production and quick-turnover, such physical deficiency costs the employer millions of dollars each year. Every employer of labor has more or less dead weight to carry along. If that employee is in the employ of some common carrier, he becomes not only a menace to himself but also to the traveling public. In 1912 the accidental death-rate of locomotive engineers was 318 per 100,000, but things have improved to such an extent that now it is no greater than in other vocations.

In the decade 1912 to 1922 deaths from organic heart disease in the operating branch of American railroads increased 74 per cent while there was a decrease of 9 per cent in the same age group of males otherwise employed. Deaths from cerebral hemorrhage increased in this same group 11.4 per cent and reduced 2.2 per cent in the civilian group, and diabetes was decidedly more prevalent in the group representing the railroads. Due to lack of later statistics, the prevalence of these disorders in the railroad group is not now known but it probably closely parallels these figures, and is gradually increasing the same as in the general population.

Operation and maintenance of industry is naturally a hazardous occupation and every employee should enjoy reasonably good health or certainly should not have an advanced stage of any degenerative disease. Upon employment his true physical condition is sometimes known, but never afterward—due to lack of periodic physical checkup. Every industry in the South and probably in the country has employees who are holding their positions by seniority or sympathy instead of physical and mental efficiency, and only a casual inspection discloses the fact that they are a liability to their employer, a hazard to themselves and a menace to those whose safety is intrusted to them. In every shop where power machines are in use there are worn-out, physically unfit men operating these machines where a vertigo or a minor mis-step would catapult them to their deaths or permanent injury at the expense of their employer.

Physical impairment contributes to bad judgment, inefficiency, lack of production and to physical hazard and injury not only to the employee but to those in contact with him. How can this condition be corrected? The union has strenously opposed periodic physical check-ups and many of the employees refuse physical examinations, unless compulsory, for fear of disqualification. The union has insisted on an employee's retention on account of his seniority rather than physical and mental efficiency. If industry would have a new employee sign an agreement or contract at the time of employment, and before he is eligible for union membership, in which he agreed to comply with the rules of the company and have one of these rules state that every employee, before employed, must have a complete physical examination with Wassermann test, and must be reexamined every three to five years or oftener, if deemed advisable by the company, the next few years would show a great improvement in the health and efficiency of labor and accidents would be mate-

rially reduced. Unfortunately the astute politician has used the labor unions as a tool and welcomed their support, and then ignored the issues arising from their over-zealous activity. May we soon have a leader who will have the courage to tell the belligerent labor factions just what he and the American public really think about their crippling and illegal activities.

Those physically unfit and senile cast-off employees must be cared for, which introduces the question of industrial pensions. Anyone receiving benefits from any fund should be a contributor to that fund. Under the legislation now in force, those individual employers of labor who are contributing a considerable amount to the fund under the Social Security Act, cannot participate in its benefits even though they become insolvent at some future date. Some feel that an employer of labor should bear some of the responsibility of his care after he is "worn-out by fair wear and tear in service". While federal legislation has authorized old age and disability allowances in industry, the efficient and impartial and economic application of the law should be vested in a board of men of unquestioned integrity, untrammeled by presidential or legislative coercion, influence or intimidation.

As practitioners of medicine, even though some may call themselves surgeons, we should ever be elert for physical defects, independent of the injury we are treating, which might make that employee a potential source of danger to his fellow-man and an expensive liability to his employer.

ECLAMPSIA.*

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Eclampsia is an acute toxemia of pregnancy which is usually accompanied by clonic and tonic convulsions, during which there is loss of consciousness. In most classifications of toxemias of pregnancy, eclampsia is synonymous with convulsions, the presence of which differentiates these patients from the preëclamptic group.

In the State of Virginia in 1935, there were 290 puerperal deaths and seventy-four,[1] or approximately one-fourth, of these were due to puerperal eclampsia. In 1936 eclampsia was the cause of seventy maternal deaths in this State. A review of all puerperal deaths in Virginia since 1922 shows that eclampsia has been given as the cause of approximately 25 per cent of the maternal deaths occurring in each year, and in some years it has caused more than one-third of the puerperal deaths.

Several authors, Stander,[2] Peckham,[3] Eastman,[4] Douglas,[5] Dieckmann[6] and others have established the fact that the late sequelae of eclampsia are responsible for many deaths classified as cardiovascular renal disease among comparatively young women.

The cause of eclampsia remains unknown. Eastman has stressed the arteriolar spasm in toxemia patients, and a recent paper by Vorzimer[7] has emphasized "The Endocrine Basis of Toxemia of Pregnancy".

The prevention of eclampsia offers the best method of reducing both the immediate and the remote maternal mortality associated with this complication. Patients should seek medical care whenever pregnancy is suspected, and return to the physician or clinic at regular intervals, at least once each month during the first seven months, then every two weeks until the last month when they should return each week and whenever any unusual symptom appears.

The physician should make a complete examination and record the patient's weight, blood pressure, urinary findings and any evidence of disease or abnormality at the first visit. Whenever hypothyroidism is suspected the basal metabolic rate should be determined. Vorzimer[7] has classified the evidence of glandular disease under the following headings: (1) Body weight; (2) Hair distribution; (3) Stature; (4) Form of pelvis; (5) Basal metabolism; (6) Blood proteins.

The same author has stated "our observations indicate that 30 per cent of women presenting the endocrine stigmas described above (stocky frame, obesity, abnormal distribution of hair) will develop toxemia of pregnancy." In toxemia patients the

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albumin globulin ratio is often changed, and sometimes reversed.

After the initial examination regular prenatal observation is essential in the prevention and management of the toxemias. The blood pressure is frequently low in the early months of pregnancy, and a gradual or rapid increase in pressure, particularly the diastolic, is often an early indication of toxemia. We have found the relative elevation more important than the use of an arbitrary level, such as systolic 140, diastolic 90.

A slight albuminuria usually occurs in preëclampsia. Any increase beyond a cloudy precipitate usually indicates a dangerous toxemia. The rate of increase of albuminuria when studied with changes in the patient's weight, edema, blood pressure and headache or other symptoms, usually enables one to determine the advisability of terminating the pregnancy.

Our treatment of the early toxemias consists of a diet low in salt content but otherwise normal, fluids freely, including skimmed milk, good elimination, usually with magnesium sulphate orally if necessary, and plenty of rest in bed. Recently we have added calcium and vitamines B_1 and D to the diet. Often we give a high protein diet. Any patient under this treatment who fails to respond quickly and shows signs of an increasing toxemia should have her pregnancy interrupted before she goes into the convulsive stage. Her pregnancy should be terminated regardless of the number of months of gestation. (The exception to this plan of treatment includes those patients whose religion forbids the interruption of pregnancy, and a few patients who after knowing the dangers are willing to take the additional risk associated with a severe toxemia.)

Last year we reported that the incidence of the toxemias of pregnancy was 11.4 per cent at the Medical College of Virginia Hospitals,[8] and the incidence of eclampsia was 2.02 per cent. Two-thirds of our eclamptic patients had no prenatal care, and the remaining one-third had inadequate care, usually only one visit to a physician or clinic. By Eden's classification, 54 per cent of our patients had severe eclampsia and in the past three years this has increased to 65 per cent.

The value of prenatal care in preventing eclampsia can be emphasized by a study of 790 consecutive obstetrical patients during the past five years at Saint Luke's Hospital in Richmond. These were all private patients and most of them consulted a physician early in pregnancy; fifty-eight patients or 7.3 per cent had some type of toxemia and fifty-two of these were probably preëclamptic toxemias. Eclampsia did not occur in any patient, but we think several patients in this group would have had convulsions in a few more hours, if treatment had been delayed.

During the past three years we have admitted to the Medical College of Virginia Hospitals sixty-four eclamptic patients, and only four died. A study of the four deaths leads one to believe that eclampsia occurred in these women as an acute toxemia superimposed upon previously damaged kidneys.

Fifty-five patients were primiparae and two of these, or 3.63 per cent, died. Nine patients were multiparae, and two, or 22.22 per cent, of these died. This indicates that eclampsia occurs most frequently in young women, but it is most fatal in women who have borne children, a group in which permanent kidney damage is most frequent. Half of our patients were less than twenty years old. Five patients or 7.81 per cent were over thirty years old, and this group includes one-half of the maternal deaths.

Since 1934 the onset of labor has been spontaneous in forty-three or 67.18 per cent of our eclamptic patients. Labor was induced (usually by artificial rupture of the membranes) in 13 or 20.31 per cent of these patients.

The type of delivery was as follows:

Spontaneous—37 or 57.81 per cent.

Forceps—17 or 26.56 per cent.

Caesarean Section before labor—6 or 9.06 per cent. (One post mortem section.)

Version—1 or 1.56 per cent.

Craniotomy—1 or 1.56 per cent.

Three patients died undelivered but one of these was sectioned after death.

CHART 1.

ECLAMPSIA. MATERNAL MORTALITY UNCORRECTED. JANUARY 1, 1922, THROUGH DECEMBER 31, 1937. 16 YEARS.

TOTAL PATIENTS 317.

1. January 1, 1922, through December 31, 1927. Total 106 patients. Maternal Mortality 28.1 per cent.
2. January 1, 1928, through December 31, 1932. Total 107 patients. Maternal Mortality 21.49 per cent.
3. January 1, 1933, through December 31, 1937. Total 104 patients. Maternal Mortality 7.69 per cent.
4. January 1, 1935, through December 31, 1937. Total 64 patients. Maternal Mortality 6.25 per cent.

In group (1) eleven patients were omitted when the maternal mortality was calculated because the charts failed

to show the final condition of the patients. They might have decreased the maternal mortality rate for group (1) to 24.69 per cent or increased the maternal mortality rate for this group to 43.27 per cent.

CHART 2.

ECLAMPSIA. INFANT MORTALITY UNCORRECTED. MOTHERS UNDELIVERED, STILLBIRTHS, AND NEWBORN DEATHS. JANUARY 1, 1922, THROUGH DECEMBER 31, 1937. 16 YEARS.

1. January 1, 1922, through December 31, 1927. Infant Mortality 56.36 per cent.
2. January 1, 1928, through December 31, 1932. Infant Mortality 40.24 per cent.
3. January 1, 1933, through December 31, 1937. Infant Mortality 23.81 per cent.
4. January 1, 1935, through December 31, 1937. Infant Mortality 21.87 per cent.

If we correct group (4) by omitting the patients who died undelivered and those less than 28 weeks pregnant at the time of delivery, the combined stillbirth and neonatal death rate is 12.28 per cent.

Chart I shows an uncorrected maternal mortality of 6.25 per cent for the past three years. Chart 2 shows during the same period an uncorrected infant mortality of 21.87 per cent for all eclamptic patients.

Treatment of the toxemia patient must be individualized both before and after the onset of convulsions.

An excellent review of the numerous methods of treating eclampsia was published last year by Dieckmann. I shall outline the treatment we have used for the past three years. On admission the patient with convulsions should be segregated, kept quiet, and watched constantly to prevent body injury. During the convulsion an attendant should protect the patient's tongue and lips, and remove the mucus. Elevating the foot of the bed is helpful in some cases, and we frequently use an aspirator to remove the mucus. Immediately after the convulsion oxygen is helpful until cyanosis disappears.

Control of the convulsions is attempted by the intravenous injection of 20 cc. of 10 per cent magnesium sulphate solution. Immediately following this and before removing the needle, we give 2 cc. or 4 cc. of digifolen, followed by 300 cc. to 500 cc. of 10 per cent dextrose solution intravenously. A specimen of blood for chemical analysis is obtained when the vena puncture is done, and the intravenous medication is usually started immediately, thus decreasing the number of vena punctures.

Intravenous solution of magnesium sulphate may be repeated in one hour if necessary to control convulsions, or restlessness. We limit the magnesium sulphate intravenously to 60 cc. of a 10 per cent solution in twenty-four hours. Calcium suitable for intravenous use should be available whenever large doses of magnesium sulphate are used. Digitalization may be completed by oral administration of the drug if the patient is conscious, or by nasal tube if she is comatose.

Schumann has stated that eclamptic patients usually have a dilated heart when examined at autopsy. Pulmonary edema is a common complication of eclampsia. It has been proven that digitalis leads to marked increase in cardiac tonicity and irritability, particularly of the ventricular muscle. The reverse is true of the magnesium salts. These substances are physiological antagonists as far as the heart is concerned. Therefore, digitalis should be given in large doses to overcome cardiac depression when magnesium sulphate is used intravenously. Digitalis may also have some beneficial diuretic action in these cases.

We rarely ever use morphine except when eclampsia is complicated by cardiac symptoms or pulmonary edema. Phlebotomy is also limited to this group. Many neurologists think morphine is contraindicated in the presence of edema of the brain and we believe the omission of this drug from our routine treatment has probably decreased our stillborn and newborn death rate. It seems probable that large doses of morphine may either stop uterine contractions or prolong labor when given to women having convulsions and just starting in labor. If given late in labor the baby may be difficult to resuscitate. We use pentobarbital sodium (nembutal) or sodium amytal for analgesia if the patient is restless or in labor.

Dextrose solution intravenously may be repeated every six or twelve hours as necessary. Sodium lactate should be added if the CO_2 combining power of the blood plasma is low. If the patient is conscious, sweetened fruit juices and water in liberal quantities are given orally. The comatose or semiconscious patient should not be given anything by mouth except through a nasal or a stomach tube.

We attempt to terminate pregnancy artificially only in those patients who fail to respond to conservative treatment, and those who improve under treatment, but after a few days show signs of increasing toxemia. Eclamptic patients react poorly to ether and all general anesthetics. They often deliver spontaneously without any anesthetic. We prefer local

or spinal anesthesia when operative interference is necessary. I believe Caesarean section should be resorted to in toxemia patients only when rapid delivery is indicated and the condition of the cervix and size of the pelvis predispose to a long or difficult labor.

SUMMARY OF CASES

No. 1. A. C. Admitted November 7. Delivered November 12. Died November 20. Negro, aged fourteen years, gravida i, para o, twenty-six weeks pregnant, two visits to the prenatal clinic. Admitted by ambulance, totally unconscious, and with a history of severe convulsions.

Physical Examination: B.P. 152/90, pulse 110, temp. 99 degrees. Urine: sp. gr. 1.020, heavy albumin, abundant pus, no casts. Blood: R. B. C. 3,200,000, Hbg. 65 per cent, W. B. C. 6,600. Blood chemistry: sugar 68 mg., N. P. N. 25 mg., uric acid 5 mg., plasma CO_2, 40.9 volumes per cent, albumin 3.3, globulin 3.

Treatment: On admission magnesium sulphate solution 10 per cent, 20 cc. intravenously. This was repeated in one hour, and followed by dextrose solution 10 per cent, 500 cc. intravenously. Following this she remained quiet and the convulsions stopped. During the next two days she received five intramuscular injections of 50 per cent magnesium sulphate (2 cc. each). This was alternated with sodium luminal gr. 2 intramuscularly for sedation. Patient remained quiet and gradually regained consciousness. Fluids by mouth freely.

Onset of labor spontaneous November 12 at 4:00 P. M. Low forceps delivery of a premature living male at 9:50 P. M. Nitrous oxide and oxygen anesthesia.

Temperature 103 degrees before delivery, remained elevated. Patient remained conscious until a few hours before she died on November 20.

Autopsy: Bilateral pyelonephritis. Bronchopneumonia. Splenic tumor. Ulcers of colon.

No. 2. G. H. Negro, aged twenty-three years, gravida i, para o, about forty-two weeks pregnant. Sent by private car thirty miles to Richmond. Admitted totally unconscious May 12, 1936, at 1:05 A. M. and died twenty-one hours later. Her husband stated that she had no prenatal care and had headache, edema, nausea, vomiting and loss of vision for one week, and convulsions for twenty-four hours before entering the hospital.

Physical Examination: B. P. 186/120, pulse 120, temp. 103 degrees, unconscious but restless. Foetal heart sounds not heard.

Catheterized specimen of urine, port wine color, sp. gr. 1.004, albumin, boiled solid, gross blood and many casts. Blood examination: R. B. C. 4,230,000; Hbg. 85 per cent, W. B. C. 26,150. Blood chemistry: sugar 80 mg., N. P. N. 43 mg., uric acid 11.7 mg., cholesterol 304 mg., albumin 4.4., globulin 2.

Treatment: Magnesium sulphate solution 10 per cent 20 cc. intravenously, repeated after fourteen hours. Magnesium sulphate solution 50 per cent intramuscularly, five doses of 2 cc. each, alternating with sodium luminal gr. 2 intramuscularly. Patient failed to regain consciousness and died undelivered.

Autopsy showed a full-term macerated foetus *in utero.*

Bilateral hydro-ureter and bilateral nephrosis.

Heart and liver normal.

No. 3. I. M. Negro, aged forty-two years, gravida viii, para vii, about thirty-two weeks pregnant. Admitted by a private car totally unconscious at 10:30 P. M., July 28, and died undelivered five hours later. A neighbor found her unconscious and thought she had a convulsion. She had not seen a doctor, and no other history could be obtained.

Physical examination: B. P. 230/170, pulse 120, temp. 103 degrees, respirations 35, not in labor.

No urine obtained. Blood examination: R. B. C. 4,444,000, Hbg. 88 per cent, W. B. C. 18,850.

Blood chemistry: sugar 198 mg., N. P. N. 43 mg., uric acid 6.2 mg., albumin 3.1, globulin 2.1.

Treatment: Magnesium sulphate solution 10 per cent 20 cc. intravenously, followed by dextrose solution 10 per cent 500 cc. intravenously. Nasal tube passed, gastric lavage, then digitalis gr. 9, magnesium sulphate one ounce and nembutal gr. 3 left in the stomach. She had no convulsion after admission to the hospital but failed to improve and died undelivered.

Partial autopsy showed an undelivered pregnancy.

Multiple hemorrhages in the liver.

Tubular degeneration of the kidneys.

No. 4. E. L. Admitted December 24, 1937, at 7:30 A. M. Died December 25, at 8:55 P. M. White, aged thirty-three years, gravida viii, para v, abortions ii. Admitted by city ambulance. About thirty-six weeks pregnant and totally unconscious. No prenatal care. History of headache, visual dis-

turbances and edema for several weeks. She was found having convulsions about 5:00 A. M., and known to have had four convulsions at home and two on the way to the hospital. Morphine sulphate one-fourth grain administered at home.

Physical Examination: B. P. 170/130, pulse 130, temp. 102 degrees, respiration 20. Unconscious but quiet.

Urine: sp. gr. 1.028, albumin solid, no casts, many blood cells. Blood examination: R. B. C. 5,320,000, Hbg. 110 per cent, W. B. C. 27,400. Blood chemistry: sugar 156 mg., N. P. N. 34 mg., uric acid 5.1 mg.

Treatment: Magnesium sulphate solution 10 per cent, 20 cc. intravenously, and dextrose solution 10 per cent 500 cc. intravenously. Gastric lavage and magnesium sulphate one ounce, digitalis gr. 9 and nembutal gr. 3 by nasal tube.

Patient remained quiet but failed to improve. She was given 50 cc. of 50 per cent dextrose twelve hours after admission and later caffeine and coramine. She died undelivered the day after admission.

No *autopsy*.

SUMMARY

1. Early and consistent prenatal care will reduce the incidence of preëclampsia and eclampsia.

2. The interruption of pregnancy in preëclampsia before the onset of convulsions will reduce both maternal and infant mortality.

3. After the onset of convulsions treatment should be directed to the prevention of body injury to the patient, and to control of convulsions by medication.

4. Convulsions can usually be controlled by 20 cc. of 10 per cent magnesium sulphate intravenously.

5. We usually give 500 cc. of 10 per cent dextrose solution intravenously immediately after the initial dose of magnesium sulphate.

6. Sodium lactate should be given intravenously whenever the CO_2 combining power of the blood is below normal.

7. Morphine is unnecessary and probably harmful.

8. Rapid digitalization is helpful and probably reduces cardiac complications.

9. We limit fluids to less than 3,000 cc. in twenty-four hours only when cardiac decompensation threatens or occurs.

10. Delivery is indicated only after the convulsions have been controlled or when the patient fails to respond to medical treatment.

11. The treatment outlined resulted in an uncorrected maternal mortality of 6.25 per cent in sixty-four consecutive eclamptic patients, and an uncorrected infant mortality of 21.87 per cent; fifty-two normal live babies were discharged from sixty-four eclamptic mothers.

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MEDICAL JURISPRUDENCE—THE MEDICAL WITNESS.*

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When we consider the subject of medical jurisprudence from a medical viewpoint, there is in my opinion a certain difference or contrast, when considered from a legal or other viewpoints. It is my sincere opinion, based on observations over many years, that the average doctor, however proficient he may be in his usual professional capacity, does not measure up to his usual standard of efficiency, when called upon to testify in Court. The end-results are that not infrequently misunderstandings arise, which tend to thwart the great goal of *justice*, which is, I

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am sure, and by every right should be, the mutual objective of all parties concerned. And, furthermore, the effect of these misunderstandings on juries, and more especially on the spectators present, is far from what one might desire, in order that the efficiency and dignity of the Courts may be properly upheld.

It would appear to me, therefore, that a great good may be accomplished, at least from a medical viewpoint, by meetings of this type, where we may come to know you members of the legal profession, in a friendly, social gathering, contrasting rather definitely as it does, with our usual relationship in Court procedure. It is truly an instance where the trite saying, "Where ignorance is bliss, 'tis folly to be wise", does not apply. I truly believe that the majority of attorneys stand somewhat aghast as they listen to medical men express different opinions about a given case, and fail utterly to understand why they should differ, when as a matter of fact we physicians are inclined to think there is never more difference of opinion anywhere in the world than among the members of the legal profession, as we listen to your comments and discussions in the court room. So it really does appear to me that a better understanding of each other's ideas and problems might at least be of some help.

That a certain amount of *fear* based upon ignorance and misunderstanding tends to dominate the mind of the average medical witness in Court, is in my opinion a statement of *fact*. That everything that will help to alleviate this fear, whether from ignorance or misunderstanding, would be productive of good results is again in my opinion a statement of *fact*. The general opinion of the average medical witness, when he takes the witness stand, and an oath to tell the *truth*, the whole *truth*, and nothing but the *truth*, and has finished testifying, seems to be that, while one attorney is trying to bring out the truth, another on the opposite side is trying equally as hard to keep the *truth* from being brought before the jury and Court. And all due in my opinion from failure to properly understand Court procedure, or the fundamentals of difference between handling a sick person, and handling a case in Court. The unveiling of *truth* is the only means by which real justice can be brought to light—a premise in which we of both professions are vitally and I am sure mutually interested, and one in which we of both professions are to a certain extent ignorant of the other's viewpoint. So it will be my endeavor from a medical standpoint to outline to you of both professions some of the impressions and reactions of the average doctor, from his medical school experience, up to and through the time he receives a summons in Court, takes the witness stand, and testifies under oath as to his knowledge or opinion of the particular case under consideration, based upon my own experiences and mistakes as a medical witness.

Most people, including attorneys at law, I believe, are rather inclined to think the amount of time we take in preparation for the practice of medicine, should be amply sufficient for the *average intellect* to know a great deal more about medical jurisprudence and any other subject taught in a medical school, than as a matter of fact we really do know. In this assumption they are probably correct, because certainly it is not customary among medical men of my acquaintance to make many 100 per cent grades on the subjects studied in school. The statement that our education in medical schools on the subject of medical jurisprudence is not only very limited, but at times faulty and defective, may come as a surprise to members of the legal profession, yet I am sure it will not be challenged or denied by the members of the medical profession, unless it be *the faculty member* who stages the brief course for medical students on this important subject. In fact, about all we medical men know about medical jurisprudence "is what we read in the papers", or what we learn at your hands, trying to testify in Court, and this at times to our rather severe embarrassment and sorrow.

One of the first and most embarrassing experiences I ever had on the witness stand came about as a result of a statement made in one of our textbooks on medical jurisprudence—namely that a medical man cannot by any process of law be compelled to testify as an expert witness, unless he so desires, or is willing to do so. I quite well remember the argument between an attorney and myself on this point. We both thought we were right until the late Judge Moffett explained that the law was different in our several states, but that in Virginia a medical man could be summoned and forced to render expert testimony, whether he wanted to or not, but that the right of compensation was a privilege of the expert medical witness, to be mutually agreed upon by those parties interested or determined by the Judge of the Court. Had my fundamental education been more complete along this line, I would certainly have been spared an embarrassing experience, and I believe

also the attorney in the case. Dr. Beverley R. Tucker, a prominent specialist of Richmond, and a man of wide experience as a medical expert, and professor of Neuro-Psychiatry, Medical College of Virginia, in an address delivered before the Seaboard Air Line Surgeon's Association in Miami, Florida, December 5, 1935, and at the Atlantic Coast Line Surgeon's Association in Charleston, S. C., April 7, 1936, on page three of his address, makes this statement: "You can be called as an ordinary witness and be made to testify, but you cannot be made to testify as an expert witness, unless you wish to do so." This statement is also made by other teachers as well as authors of books on medical jurisprudence, which will explain the above statement that our fundamental education is in my opinion at times apparently faulty and defective. Who is right? It is my opinion that Judge Moffett's ruling is correct and the other's necessarily wrong, and until the Supreme Court of Virginia changes a Judge's ruling or decision, the same decision has the force of law.

That we medical men are rather inclined to take matters of difference between the two professions in court more seriously than the attorneys, is again in my opinion true in the majority of instances. That the answer—"I don't know", which we so often hear from a medical witness, is indeed and in truth a statement of *facts* in the case, is in my opinion sometimes misunderstood by an attorney as an unwillingness on the part of a physician to try and intelligently answer a question. My observation is that very frequently a medical witness rather than admit his ignorance publicly, tries to answer questions, that right down in his heart, mind, and soul, he really knows that he does *not* know the answer.

Again, because of the many things, such as jury service, etc., that we medical men are exempted from, because of the very nature of our duties and obligations, it seems to me that we are rather inclined to forget that there are certain duties and obligations we owe to society as citizens, such as the subject at present under consideration. One of the outstanding *defects* of the medical profession today is, in my opinion, a failure to properly build up a good medical, professional *collateral*, in the communities and states in which we live, along this very line of thought.

I feel that the medical profession should have the idea thoroughly impressed upon their minds, that to render any act of citizenship, whether in court or elsewhere, is just as important and necessary in our profession as elsewhere in life.

Secondly, a properly prepared and well-trained medical witness need not only have nothing to fear in court, but, on the contrary, his experience there may also serve as a pleasant introduction in a community (advertisement if you care to thus describe it) that does not cost him a cent and for which he cannot be accused of so-called *unethical conduct*.

Thirdly, failure to properly familiarize ourselves with the subject upon which we will be examined in Court is another great fault. Desiring to get through with this trying ordeal as expediently as possible, medical witnesses frequently make the fatal mistake of not giving the proper amount of study to the subject, with the result that their experiences on the witness stand give them a rather unfavorable advertisement. It is not only the duty of citizenship to answer a summons *promptly*, but a question of duty and courtesy to our Courts to go on the stand well enough acquainted with the subject to give intelligent answers to questions, whether the answer is *yes, no*, or *I don't know*, and, above all, to properly distinguish between *opinions* and *facts*.

I doubt, if you would ask the average doctor for a definition of a "dying declaration", and grade the answer in a legal way, if the grade would be much over 10 per cent. For the most part we appear to overlook the fundamental legal idea of a dying declaration being a belief on the part of the person making it that, at the time of such statement, he or she thinks they are in immediate danger of death. And it makes no difference what the physician or anyone else thinks of the patient's condition, as a pre-requisite for such statement to be admitted in Court as evidence. I believe this is fundamentally and legally correct.

Fourth:—Insincerity. As far as I have been able to discern, this is not a usual thing among medical witnesses, and in all sincerity I truly believe it is less common than perhaps a great many people think. When a physician takes the witness stand and testifies that in his opinion a certain person is *insane*, this information becomes a batter of public record. But the public knows little if anything about the many other cases concerning which we are consulted in private, and concerning whom we express the opinion that the person is *sane*, for the very obvious reason that we are generally not called upon to testify in this class of cases.

Reactions to Summons:—When a physician re-

ceives a summons to testify in Court his first reaction appears to be to "see red," so to speak. Probably because of his professional obligations to some one who is real sick,—I wish here to record the fact that I have never yet and never expect in the future, to know of any case of this type that does not receive the most gentle and humane consideration from everyone officially connected with a Court procedure,—maybe from fear because of ignorance of the case, or unwillingness to take the necessary time to prepare for his testimony, or lack of acquaintance with the legal set-up in a Court room, or on account of the unusual surroundings in which he finds himself placed. The physician is in the habit of examining patients and discussing their troubles in the privacy of his office or sick room, with the usual attendants, which are always very limited in number. When he is suddenly, and also rather infrequently, placed in the publicity of a Court room, the contrast to the physician is more marked perhaps than you gentlemen of the Bar Association might think. I have seen many physicians or surgeons who were really *masters of their arts* in the examining or operating room, act like timid school boys on the witness stand, even with many years of experience. Why? I truly believe the answer is largely due to lack of familiarity with affairs in Court room, plus an emotional mental disturbance (stage-fright), as a result of the contrast between the sick room and the Court room.

On the Witness Stand:—With the foundation, as above outlined, we are now ready to take the witness stand. Above all other things, be *prompt* in attendance, as your first answer to a court summons, not only as a matter of ordinary courtesy, but also as a matter of assistance and helpfulness. If impossible to be there on time, extend the same courtesy of notification to the courts as you would to the most important social engagement—RSVP. Most of us answer questions on direct examination much more readily than we do on cross examination. Why? In the first place we generally have had an opportunity to discuss the case at hand with the attorney who directs the initial examination, or at least are generally acquainted with him, and the general line of questions he asks. Not so, however, with the person conducting the cross examination. A failure to have at least a fundamental idea of the general principles underlying the two types of questions frequently brings about hesitant answers on cross examination from a medical witness, who has been quite the reverse in answering the direct examination. Or it may be a type of question that is difficult to answer, such as one I heard asked in Court on cross examination, not so long ago, purely in the form of jest: "Doctor, what is electricity"? The physician, being unable to answer, was told rather promptly to "stand aside". This particular physician was rather irate, failing entirely to grasp the humor of the question, which was in the mind of the attorney at time question was asked. A darkey on the witness stand, hesitating on each and every question, when upbraided by the Court for such slow answers, is said to have told the Court that he could not *talk like attorneys* without thinking. The end-result of the whole procedure is to leave the impression of *partisanship* on the part of the witness, which is, I believe agreed to by all of both professions, a *most unfortunate thing.* If we could only realize the importance of familiarizing ourselves with the subject under consideration, and extend the same genuine courtesy to counsel on either side, (the same alike), what a difference there would be in the general impression on the jury and spectators! Don't forget that you as a witness cannot be forced to answer all questions *yes* or *no;* also remember that the question as to whether a person is "drunk" or not is a very relative question (ill,—jocose, etc.,—blood-test).

Then, again, it is important to talk in plain, simple, understandable language. We medical men have to do a lot of translating in our conversations with our patients and for the most part do it very nicely, I believe, but when we get on the witness stand we seem to lose all sense of relationship, and, instead of saying that a person has an inflammation of the inner lining of the heart, we prefer to say he has an "endocarditis". Of course, this sounds rather big at first, but what idea does it convey to the jury? Or we may say osteo-myelitis for bone inflammation; arterio-sclerosis, for hardening of the arteries; pneumonitis instead of pneumonia; neuritis instead of an inflammation of the nerve; meningo-encephalitis instead of inflammation of the brain and membranes. Or instead of saying the small muscle that raises the upper eyelid, we prefer to say the levator palpebræ; or, the most inexcusable of all, instead of describing a small muscle that lifts the upper lip and opens the nostril in front, we call it, one of the smallest muscles in the body, by the unfortunate name of levator labii superioris alæque nasi, and feel perfectly satisfied that we have acquitted ourselves nicely, when,

as a matter of fact, I believe the jury sometimes thinks *we ourselves* should be *on trial* rather than the person being tried. Always avoid quoting textbooks as far as possible and remember *you* must be your *own* authority on questions of expert opinion.

Again, we sometimes permit ourselves to lose our temper or rather become fretted, which is the worst thing that can happen to any witness; and this more often through the inability to understand fully the whys and wherefores of the entire procedure. Our inability to distinguish between opinions and facts is most unfortunate at times. We frequently make the mistake of testifying as to hearsay evidence, as I myself did accidentally or unthoughtedly not so long ago in our Court here, and was very promptly reminded by one of the attorneys of the error. It is really *surprising* how *little* any of us really know, and *how much* we *think* we know, because we fail to distinguish between our *opinions* and *facts* in a given case.

Ordinary vs. Expert Testimony:—A proper distinction between ordinary and expert testimony appears to be another stumbling stone for most of us, and sometimes it appears to me rather difficult for one to determine where one stops and the other begins. If it is true that a medical witness is entitled to compensation for expert evidence, and he certainly is not for his ordinary evidence, then these are matters that should best be settled before going on the witness stand, rather than argue such questions before a jury or spectators. I believe there is a definite difference of opinion in the minds of the average attorney and the average physician on this point. From a *medical* viewpoint we are inclined to the idea that *few physicians are expert in anything;* if any of us are entitled to this most complimentary term, we would rather be inclined to refer to the *specialists* as experts rather than to the general practitioner. From a legal viewpoint, it would appear that you gentlemen refer to expert testimony as that evidence given by *anyone efficiently* and *pecularily trained* and *educated* along any *particular* line,—not that he has to be a specialist or expert among his fellow members of his particular profession, but rather *expert as compared to those* not *educated or trained* along that *one particular line or profession.* I believe this is approximately correct from a legal viewpoint. If not, I will be glad to be enlightened on the subject.

An attorney said to me once that one thing most lawyers could not understand was why doctors differed so frequently in their opinions in a given case. My answer was the "story of the blind men from Hindustan and the elephant." Take, for instance, insanity: sanity means sound mind; insanity means unsound mind. Degree of unsoundness determines knowledge or ignorance of the question of right or wrong in any given case. In all probability a big majority of all criminals, and probably 100 per cent of all *chronic* criminals, have at least some mental unsoundness. Criminal responsibility depends therefore upon a percentage degree, and is in my opinion one of the most difficult questions to answer, either from a civil or criminal viewpoint. There are many forms of insanity and the big majority of them vary from time to time. For instance, *periodic alcoholic insanity*—clear today, cloudy tomorrow. Then, too, the impossibility of getting the same history or the same reactions from the same patient at different times. Also the limited time frequently available to formulate an opinion by a careful study of the case. Here again the specialist comes in for his superior knowledge of this kind of work and which I believe is recognized by the laws of the Commonwealth of Virginia. Thus if we say in a hearing on a commission of insanity that in our opinion a person is insane, and send him to a state institution, the superintendent may disagree with us, and the courts appear to or are supposed to stand by his decision, rather than the opinions of the two physicians of the commission. We probably study the case a brief few hours, while the superintendent of one of our mental institutions will probably take several months of daily study and observation before formulating an opinion.

The words probability and possibility, when involved in a question, appear often to be a rather confusing problem for most medical witnesses. We seem to be inclined again to overlook the distinction between opinion and fact, and also that the word probability would suggest a high percentage idea and the word possibility a low percentage, but, nevertheless, the possibility idea is a percentage of *fact.* A most careful study and analysis of every question asked on examination is of the utmost importance, for, otherwise, it is very difficult to make one's testimony compatible throughout. Yet how often do you notice a medical witness attempt answer, with little if any consideration of the real purport and meaning of the question asked!

That medical opinion can be bought with a price, no one can satisfactorily deny, at least at times, any more than human opinions in other vocations and professions. That this practice is frequent is, in my opinion, not true, for, from a careful observation over many years, I have yet to know of an instance that would cast the slightest suspicion on any medical witness that it has been my privilege to confer with incident to any case. However, we must frankly admit the possibility, face the facts and do all in our power to correct this most infamous of all acts incident to medical testimony.

Now, in conclusion, may I again remind you that most of what I have said is a question of opinion and not necessarily a fact. I hope with you that, from a mutual consideration of the subject of medical jurisprudence, both professions may not only be enlightened and benefited, but that humanity in general may profit by our experiences. For, as Dr. Beverley R. Tucker once said—"Upon the proper understanding of medico-legal problems, much of the happiness, justness and prosperity of the race depends."

DIAGNOSTIC METHODS WHICH HAVE SERVED ME BEST IN DETERMINING SINUS DISEASE AND SO-CALLED HAY FEVER.*

E. TRIBLE GATEWOOD, M.D.,
Richmond, Virginia.

During the past decade there has been an increasing demand by the public for a complete medical examination by a single consultant. This desire coupled with a lack of interest in the use of certain diagnostic aids by some rhinologists has caused a number of internists and general practitioners to equip themselves for making their own sinus diagnoses. It is with this fact in mind that I wish to discuss some principal points which are often confused when determining sinus conditions.

Several years ago sinus disease was little discussed, incorrectly diagnosed and poorly treated. As a rule, the nasal passages were accused and punished for most of the disorders originating in the sinuses. However, there are many sinus cases today which are receiving urgent treatment to their nasal passages when their sinus cavities are receptacles of pus.

The ability to recognize and differentiate nasal symptoms from sinus symptoms is all important. This may not be done in every case because there are certain conditions which are interrelated and definitely dependent upon each other. Nevertheless, most cases can be properly analyzed so that appropriate treatment can be rendered and better results obtained. The term, "sinus infection", as a diagnosis is too generally accepted and recorded as a specific condition. One should endeavor to state which sinus or group of sinuses is involved and the type of pathology existing in each. This may seem unnecessary to the casual observer but, if the disease is to be treated properly, this information is absolutely necessary. For example, an acute frontal sinus empyema may do well under one form of treatment while, on the contrary, if it were chronically diseased with polypoid granulations, similar treatment would make it infinitely worse. Then again, a recently developed maxillary empyema will usually respond to a few irrigations, when it is more often a waste of time to continue irrigating a cavity partially filled with chronic pathology.

As sinus infection is one of the most potent factors in the production of systemic diseases, it has become necessary that the internist know the exact condition of these cavities before summarizing his general medical examination.

We are all aware of the importance of an accurate history in general medicine and it is just as applicable to sinus conditions as it is to other types of disease. A negative sinus history however, may be misleading. This has been proven to me on numerous occasions by making further objective studies. In other words, we have had patients with chronic sinus disease state that they never had colds, sore throat, nasal obstruction, headache, pain, etc., yet, upon further examination, very definite disease was found. Pain is looked upon as a prominent and constant symptom of sinus disease by the laity. Our records show that pain was frequently present in acute cases though infrequently present in chronic

*Read at the sixty-ninth annual meeting of the Medical Society of Virginia in Danville, October 4-6, 1938.

cases. All of us are familiar with the miscellaneous pains about the face and head that are usually attributed to sinus disease. This is especially true of neurotic individuals and those in the realms of domestic conflicts. Sinus disease is not unpopular and it is oftentimes accepted as a satisfying defense mechanism. Good is the doctor who can sense such functional reactions and direct the unfortunate to those more capable of giving proper treatment.

When the frontal sinus headaches exist they are usually worse upon rising in the morning, gradually improving through the day. Maxilliary sinus headaches are also located over the frontal region but they rarely improve through the day. Sphenoidal headaches are more or less constant and are referred to the occipital region. Ethmoidal headaches are inconstant, in nature and location. Irritability, fatigue and inability to concentrate comprise a "triad" which is frequently associated with any form of sinusitis. Deafness is so commonly caused by chronic sinus disease that it may be regarded as a classical sequel to this affection. The association of sinus disease with bronchitis and bronchiectasis needs no emphasis. More often than otherwise attacks of sore throat may be regarded as an acute pharyngitis secondary to chronic sinus discharge.

Symptoms of so-called perennial hay-fever have so frequently proved to be due to infection of the antrum in my experience that I rarely have to resort to other methods of investigation. It would seem that in many of these cases of infection, the nasal mucosa becomes secondarily swollen and hypersensitive to the purulent secretion that sets in motion the mechanism of sneezing. There are also other patients with maxillary empyema who have no sneezing symptoms whatsoever until the pollen season arrives. Then the pollen super-imposed upon an inflamed and irritated nasal membrane produces typical hay-fever symptoms, which can seldom be improved by pollen immunization alone. The basic cause should be removed instead of directing attention to the superficial exciting agents. Do not misunderstand, for I am aware of the allergic factors which may be the primary cause of sinusitis in some instances, and the advisability of making nasal smears, leukopenic counts, skin tests and tissue examinations before treatment is instituted. However, my experience has led me to believe that they are largely in the minority if more of the proven and accepted methods for diagnosing sinus infection are given first consideration.

Not infrequently antral disease in children is contracted from parents very early in life and remains unrecognized until more exaggerated symptoms are occasioned by some exciting agent such as swimming or until a definite bacterial allergy has developed. Early sinus symptoms in children are not entirely like those of adults, as a number of these patients may manifest no symptoms other than "stomach upsets" such as abdominal pain, nausea and vomiting. These symptoms are so similar in some instances to attacks of acute appendicitis that a nicety of diagnosis is required. Certain acute attacks are masked by complications such as severe cough, otitis media or asthma. The chronic type of sinusitis in children may produce recurrent attacks of sore throat, enlarged cervical glands and malnutrition. These are the cases which are likely to lose their tonsils, with little or no subsequent benefit. Quite frequently in older children fatigue and inability to learn satisfactorily at school are also outstanding symptoms of this form of infection.

In general, then, a positive history properly evaluated should make possible a probable sinus diagnosis. Inspection of the nasal passages before and after shrinkage should be of diagnostic help. Gently applied suction may aid in the discovery of pus from the frontal and ethmoid sinuses, though its use is of no value in aspirating pus from either the antrum or sphenoid. Palpation may elicit tenderness over an acutely infected frontal sinus but its use otherwise is of little value. The ethmoid and sphenoid are protected and the antrum is infrequently involved to the degree of external tenderness.

Transillumination is a widely used diagnostic method by general practitioners and specialists with some benefits. Much in its favor is its simplicity of use and economy of operation. The unfavorable factors are chiefly predicated upon anatomical variations which exist in the sinuses. We all know that there are few subjects whose frontal sinuses are alike in size and shape. For these reasons alone the evaluation of comparative shadows cast through these particular cavities is made worthless. The sphenoid and ethmoid are too inaccessible to attempt a reading. Transillumination develops its greatest usefulness in the examination of the antra. These cavities as a rule are alike in size and shape and therefore a unilateral shadow may be interpreted as pathologi-

cal. On the contrary, a bilateral shadow would prove nothing, as bilateral disease is no more capable of producing dense shadows than thick anatomical structures. It would seem then that transillumination is most helpful when used at a time when there happens to be a unilateral antral involvement.

Irrigation of certain sinus cavities has proven a diagnostic sheet-anchor in many cases. In most instances, this is the only positive method by which a sphenoid may be diagnosed. Irrigation is of no value in diagnosing ethmoid conditions. It may be helpful, however, in determining if infection is present in the frontal sinus when other methods have failed. Not every diseased antrum is a receptacle of pus, and a negative washing does not necessarily mean a non-infected antrum. We have had this experience when the existence of polypoid granulations approached antral capacity.

Roentgen ray of the sinuses is not always dependable even when the best technic and interpretations are followed. It should be looked upon and used as a helpful laboratory aid and not as a complete diagnostic method. The reason for this is that films taken of atrophic cases of sinusitis are not unlike those taken of normal sinuses. Again there are many border-line cases that cannot be diagnosed without making use of clinical data as well. Every rhinologist should be as well versed in the interpretation of sinus films as he is in the interpretation of clinical data. Personal interpretation of sinus films correlated with case histories and clinical findings has convinced me that it is hazardous to venture a definite sinus opinion without enlisting X-ray help. Pathology of the frontal and maxillary cavities is much more readily demonstrated on sinus films than that of the ethmoids and sphenoids. Frequently the roentgen ray is worthless when a sphenoid diagnosis is concerned. However, it does give a good definition of the anatomy which is helpful if an operation is contemplated. Correct interpretation of ethmoidal films is exceedingly difficult. The exact position required. variations of the anatomical structures and the delicate pathology that may exist require unusual consideration. Shrinkage or irrigation of the sinuses immediately before X-raying a patient should always be avoided. While certain types of sinus operations do not affect subsequent roentgen ray examinations, there are others that render roentgen ray opinions entirely worthless. In certain cases of sinus disease it is desirable to know more about the character and amount of pathology existing in a sinus than can be gained from plain sinus films. In this event, iodized oil injected into the affected cavities immediately before having the patient X-rayed will usually produce films of a more decisive nature by better outlining the pathological process in question.

In conclusion, sinus disease in general is not difficult to recognize. Yet, in order properly to treat this infection, the individual sinus or group of sinuses should be determined and visualized so that a fair knowledge of its pathology may be gained. Failure to do this may lead to misdirected nasal operations or elaborate tests with prolonged treatments for nasal symptoms which are essentially sinus in origin.

Professional Building.

DISCUSSION

DR. THOMAS E. HUGHES, Richmond: Dr. Gatewood's paper has been read with much interest. He has made some observations on the diagnosis of sinusitis that deserve our careful consideration.

In making a diagnosis of sinusitis and allergic conditions, it is essential to elicit an accurate history from the patient, to make a careful inspection of the nasal and oral cavities, and to invoke the aid of all laboratory facilities at our command. Transillumination, X-ray, suction, smears of mucus from the nasal cavity, leucocyte and differential count, cultures from the sinuses, etc., are helpful diagnostic aids.

In taking the patient's history, it is important to find out how long his symptoms have existed, whether he is subjected to colds or grip, when he has had his most recent cold, if his parents or other members of his family have allergic attacks. If the symptoms have been present since childhood, the probability is that he inherited an allergic tendency, though the possibility of sinusitis since childhood must not be overlooked. On the other hand, if the symptoms have developed rather acutely and recently in an adult, infection of the sinuses is the more likely diagnosis.

A history of difficult nasal breathing, in the absence of an anatomical obstruction, associated with frequent colds, post-nasal drainage, recurring laryngitis and sore throat, chronic cough or bronchitis, are very suspicious symptoms of sinusitis. Pain may or may not be present; nevertheless, I believe that pain is present in some stage of most cases of sinusitis, though many times it is masked by some other more severe symptom. For example, a patient with grip might have a slight pain in one or more sinuses and not attach sufficient importance to it to recall it a month later.

Sometimes lassitude and a tendency toward fatigue are the only symptoms of which the patient complains. There may be no pain, nasal obstruction, pus in the nasal cavity nor any other symptom referable to the nose, and yet, there may be pus confined in a sinus cavity. Several years ago, a young woman was sent to me by an internist

for examination. When asked her complaint, she said that she had been sent for a nose and throat examination, and that there was nothing wrong with her nose or throat. Her only symptom was lack of energy. However, after sinusitis was diagnosed in one maxillary sinus, the infection was treated and she promptly regained her normal health and vigor. Transillumination is a good laboratory aid in a unilateral maxillary sinusitis, though of less value when both sides are involved and of no practical value in any of the other sinuses. When a patient uses a dental plate, transillumination is not to be relied upon in diagnosing maxillary sinusitis, as friction from the plate produces enough thickened tissue in the mucous membrane of the hard palate to interfere with transillumination.

Suction is of some value in diagnosis of maxillary sinusitis as well as other sinusitis if a simple principle of physics is observed. Due to the anatomical structure, the frontal and ethmoidal sinuses, whose outlets are at the bottom, are more easily aspirated than the maxillary sinus whose ostium is located above the level of the floor of the sinus; therefore, after using suction with the patient's head erect, tilt it to the left shoulder and slightly forward when evacuating the right maxillary sinus, and to the right shoulder to empty the left maxillary sinus. In these positions the maxillary ostium is at a lower level than when the head is in the erect position.

Radiography offers the greatest aid of any of the laboratory facilities in diagnosing sinus conditions. With the X-ray, we can obtain information as to the size of the sinuses, compare the amount of cloudiness in the various sinuses and with the use of iodized oil find out whether or not the infection is chronic. With iodized oil in the sinus when the picture is made, the thickness of the membrane, polypi and cysts can be demonstrated.

The X-ray is of little value in differentiating sinusitis from allergic reactions, inasmuch as the mucosa of the sinuses is swollen in both conditions, which produces a cloudy picture. For this differential diagnosis, it sometimes becomes necessary to use the skin test—scratch and intradermal—and to examine the nasal mucus and blood for eosinophiles.

The importance of correct diagnosis and proper treatment of sinusitis cannot be overestimated. In many cases it is the means of avoiding chronic pathology.

SOME PRACTICAL CONSIDERATIONS OF THE SINUSES.*

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Probably the first authentic case on record of a person with nasal trouble being actually cured is to be found in Egyptian History, when in 3500 B. C. Sahura, the King of Egypt, had erected a monument to his physician, who had relieved him of some nasal trouble. No mention is made of the nature of this disease, nor are we told as to whether or not this gesture was from gratiude, or from the rarity of such a cure.

For 5,000 years, history is silent as to any other cures of nasal troubles, but it does tell us that in the fifteenth century A. D. all of the nasal sinuses were definitely located by an Italian by the name of Berangar. In spite of this work, these structures were allowed to sleep unmolested for another 400 years, when in 1882, Zuckerkandle brought them again into prominence by means of his scientific work. Since then, from the amount which has been both written and done to these sinuses it is doubtful whether or not they will ever be allowed to go back to sleep again. With all our knowledge of these structures, it has only been within the past ten years that we have begun to think of these sinuses as integral parts of the whole body, rather than as disassociated and separate cavities, located in the head, and which, when diseased, could be cured only by opening and draining. That the sinuses should have suffered many things of many physicians is not a surprise, when we consider that here were cavities which when diseased contained pus, in easy reach of the operator, and as they had no known function, they were left without anyone to plead their cause. Functionless structures are the true step-children of the body.

In order that we may better understand these structures we should first consider the nose, which has been called the "show window" of the sinuses. When we realize that the mucous membrane and blood supply of both is the same, it is hard to think of changes taking place in one, without these changes being made manifest to a certain extent in the other.

Inside of the nose are the three turbinate bones, which are situated on either side of the dividing partition, or septum. As these bones help to heat, moisten and strain the inspired air, functions which have a very definite bearing on the condition of the sinuses, they therefore must be carefully considered

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in dealing with sinus troubles. The sinuses which give us the most trouble are those which enter the nose just under the middle turbinate bone, and hence it is most important that we should pay particular attention to this region, if we would prevent trouble from getting into these.

With exception of the vestibule of the nose, the rest of the nasal cavity and the walls of the sinuses are all lined with the same type of ciliated epithelium, a structure which plays such an important part in the prevention of sinus infection. In dealing with this ciliated lining, the old paint slogan is very applicable. "Save the surface and you save all", for healthy cells, in a healthy mucous membrane, seldom become diseased, and if the cilia are on the job the sinuses will not become infected.

In order that they may function normally, these cilia must be bathed with a moist serum which comes up from the glands below, and when they are neither too wet nor too dry, they have a more or less sweeping motion like a field of wheat being blown by the wind. This ciliated action is capable of causing germs to be kept in motion, until they are swept out of the sinus opening into the nose and from the nose into the post-nasal space. Inflammatory conditions cause an increased amount of serum and exudate to be poured out, and this may produce a waterlogging of the cilia so that they cannot function normally. When this condition of stagnation continues for a long time, a complete destruction of the cilia may take place with bad results to the membranes. When from congestion, the openings of the sinuses become closed, the cilia cannot clear out the sinuses, and hence the ventilation and drainage is interfered with. When this occurs, we must do what we can to remove this handicap, and save the surface of the lining walls of the sinuses, if we would prevent a permanent injury.

Since the sinuses are normally sterile, how does this infection so often get from the nose through these well guarded openings into these sinuses? It is thought that during inspiration, coughing, diving, sneezing and blowing the nose very hard, germs are often sucked into the sinuses, and if at the same time the vitality of the mucous menbrane has been lowered, by some general systemic disease, such as influenza, the stage is set for a true sinus infection.

Whereas most cases of sinus trouble are caused by extension from the nose, still some cases of antrum trouble are caused by extension from a carious tooth, the root of which pours its poisons in the floor of the antrum.

Since the world has become sinus conscious, many patients are coming to us with conditions which they think are from the sinuses, but which, on examination, we find are in no way connected with them. Many of these patients not only come with their self-made diagnosis as to the sinus involved, but they often request the type of treatment which they prefer us to give them.

Many cases are quite easy to diagnose, but on the other hand there are cases, which are so obscure and the symptoms so indefinite, that it is only after the most thorough examination and pains-taking history, that we are able to exclude the sinuses as factors in the patient's trouble. This so-called latent type may give few definite symptoms to help us in our diagnosis. There may be a greater susceptibility to colds, at which time there is often a sinus flare-up, and at the same time some systemic symptoms may appear. Between colds there may be few symptoms other than a slight nasal discharge or post-nasal drip. As a rule there are indefinite pains about the temporal region or eye walls, with the complaint that they have a "bad feeling" in the head, and that they tire easily.

The general symptoms of the ordinary case of sinusitis are too well known to require much attention at this time, for nearly all of these patients complain of nasal secretion, pains in the head and obstruction in the nose and, unless we can cure them of these three, we have not done them any good, from their point of view.

In the case of children, they do not come but are generally dragged to our offices because of their frequent colds and their inability to breath through their noses. They generally have a mucous discharge from the nose instead of the purulent type found in adults. In fact the symptoms are not unlike those we associate with a child with diseased tonsils and adenoids —underweight, restlessness, no appetite, poor color, possibly some systemic manifestations for which we can find no other cause.

Many observers have pointed out that often cases of chronic sinusitis in later life have been caused by the changes which took place in the lining walls of the sinus in childhood, but which went unrecognized until they were permanently impaired.

If we have been able to tell that the child has a true case of sinus trouble, what can we do to cure it

and, after we have cured it, how can we prevent it from becoming reinfected?

In the case of children there is little that we can do in the way of local treatment until we can get the cooperation of both the parent and child. Probably the most important thing to do at first is to take a most careful history, finding out all we can about the home life of the child, for in building up mucous membrane resistance and immunity against colds, a knowledge of the hygienic conditions of the child's home life is most important.

Since every "bad" cold a child has probably affects the sinuses, it is most important that we do all we can to keep them from having colds, and if they should have colds, we should do what we can to stop them as soon as possible. A nasal cold in a child who has, or has had, a sinus infection, is a very different thing from a cold in a normal child.

Since "bad" colds and acute sinusitis are almost the same in children, and since the treatment of a cold is a subject with which you are all quite familiar, I will spend no time on that. There are, however, some general suggestions I would like to leave with you in regard to the treatment of the child who has a susceptibility to upper respiratory infections.

There is not much being said today about the danger of diseased tonsils and adenoids in children, but these are factors which we must never overlook in this type of child.

Much can be done to help these children in our office and home treatments, but we often fail in this because of something this child is being allowed to do at home, which is helping to keep his general body resistance low. It may be that the child has a parent who wants to harden him by forcing him to sleep on a cold sleeping porch or take cold showers, when he does not properly react after them.

We must see that he has a well-balanced diet which is rich in Vitamins A and B, and as the alkalinity of the blood and urine of all cases of sinus trouble is low, we should push our alkaline foods.

Toxins in the gastro-intestinal tract must be watched. Find out all we can about any allergic tendencies or endocrine disturbances. Many of these children are helped by small doses of thyroid extract. The restriction of salt is often important, and at the same time the giving of calcium may be indicated.

The question of swimming and especially of diving is one which must be most carefully watched and forbidden.

The form of exercise these children take is very important because over-exercise is very bad for them.

Ask about their clothing, whether they wear a hat or thin underwear in winter, whether they wet their hair and go out immediately afterwards. Do they sit in wet shoes or wear very thin-soled shoes?

These are some of the things we must consider in the general treatment of the sinuses, but in addition we must not neglect our local treatments. Since most all sinus conditions arise in the mucous membrane of the nose, and since we know that the sinuses which most frequently become involved open just under the middle turbinate bone, this is the part which should be most carefully treated.

The promiscuous use of sprays and drops is to be condemned, for it has been demonstrated that many of these oils do no good to the nasal mucosa, but may produce a lipoid pneumonia. What we expect from our local applications is the shrinkage of the nasal mucucosa without interference with the ciliary action, and the opening up of the ostia of the sinuses, so that we will have good ventilation and drainage. The placing of a small pledget of cotton, saturated with a weak solution of ephedrine, under the middle turbinate bone, followed by a slight amount of suction with a Sonderman suction bulb, often helps to open the ostia so that the sinuses can empty themselves.

I also feel that a few drops of ephedrine in an isotonic salt solution instilled into the nose about three times a day does much to prevent the nasal congestion and make it possible for the child to clear his nose better.

Time does not permit me to go into the many forms of surgical treatment which often become necessary after our conservative form has failed, nor can I discuss what has been done in the cure of these cases with the X-ray, but I have tried to bring out some conservative form of treatments which will help us with those patients who have no chronic conditions, but who are constantly being troubled with upper respiratory infections.

In conclusion, I would like to stress the fact that the question of sinusitis is one which has many sides to it and which requires the cooperation of us all, if we are going to do what is best for our patients.

None of us today wishes to do radical surgery on sinuses, and it is only by close cooperation and the careful and prolonged treatment of the type of child

of which I have been speaking that we can hope to keep them from getting into the condition where only surgery can cure them.

Medical Arts Building.

DISCUSSION

DR. W. WALLACE GILL, Richmond: With most of the paper I agree, but before I start my discussion I wish to say there are two things I decry. One is the giving of cathartics in the beginning of a case of sinus trouble.

I think recent investigations have shown, in several hundred patients at University Hospital in whom the use of cathartics was alternated as they came in, the patients being kept in the hospital until the fever subsided, that in those who received cathartics the duration of fever was actually longer than in those who did not. Of course, I think that, where children have been to a fair or a circus or something like that and have overeaten, cathartics are of value.

Another thing—I do not believe altogether in suction. You are likely to spread the trouble because of vacuum affecting normal as well as diseased chambers.

In recent years the term sinus has assumed the role which formerly was played by the term, catarrh, that all embracing alibi of a time now past. Any head symptom or combination of symptoms is now "sinus", the word so used conveys about as much as catarrh did. Until a cause for the manifestation of changes in the mucous membrane of the nose and its extensions is known, there can be no adequate treatment; and, as few cases of sinusitis arise from purely local causes, so will few cases be benefited by purely local treatment.

In the majority of the cases, the local manifestations are only a barometrical record of a general systemic disturbance and it is no use tampering with the barometer as a remedial measure. Again, in the old days the physician looked at the tongue as a diagnostic aid, but when he found a coated tongue he did not prescribe a mouth wash to cure the gastro-intestinal disorder. The nose and sinuses can also be used as a diagnostic aid. But do not use it as a proving ground for all kinds of shrinkers, antiseptics, etc., when the primary trouble is elsewhere. The worst noses which come to my office are those which have had the most local treatment. Take them off their self-medication for a few days and they improve.

What is sinusitis acute, chronic? I am not discussing anatomical anomalies and their effect on the condition known as sinusitis. For use in this discussion I am presuming that there are none. Consider the cavities adjoining the nose lined with an extension of some mucous membranes, any condition causing a change in one affects to a certain extent the other. The causes for trouble are the same, such as infections or contagious colds extending into the sinus or other reactions which, if they remain and do not resolve, become chronic or residual sinusitis.

The menace of the swimming pool chilling the cilia is now, as fall comes on, superseded by the dehydration of the furnace. Bryant, in the *Journal Lancet,* speaks of the effect of dry air on the cilia, and who knows but what the virtue of tincture of benzoin vapor, an old and honorable remedy, is due entirely to the humidity produced, so, at this season, assure proper humidity by wet towels over your radiators.

The majority of sinus disorders are due to systemic causes, allergy ranking high as a contributing cause—inhalation allergies, ingestive allergy, endocrine allergies and mental allergies, yes mental! The worst allergic sinusitis I ever had to treat was cured not by a physician (and she had many and some of note) but by a lawyer. A lawsuit which had been pending during two years of allergic manifestations was settled in my patient's favor, and presto! the nose and sinuses cleared immediately and have remained so for three years—in fact a very permanent result. As to the various treatments, the great variety is sufficient evidence that we have not applied the right remedies to the right causes, but have depended too much on local treatment or local surgery. We have found no relief or control for so-called colds. When we find that then our cure for sinusitis will be found.

Patients with recurrent sinusitis complain because they have a return and ask, "Doctor, why can't sinusitis be cured?" You should reply also with a question, "Mrs. Jones, can colds be cured?" The average sinus is just as amenahle to cure as a cold.

Salinger in a review of the progress in Otolaryngology has this to say, "Literature in 1937 still manifests a trend toward conservative treatment, operations on sinuses are becoming more standardized, operative failures are being brought into the open for discussion and as a result one may expect a clearer conception of the indications and limitations of the various operations." With that statement, I think we will all agree, and this can be taken as a negative advance and our most important advance in the recent treatment of sinusitis. I realize that so far I have been dealing in generalities but with so many factors to consider in each case, as nearly all are different, no one treatment is suitable to all, but there are certain general rules to follow.

We should remember that for a sinus to be healthy it must be well aerated and drainage unimpeded. I would say that this is the first desideratum. Search for the cause and eliminate if possible.

The X-ray has been successful in relieving some cases and there are certain cases in which many observers think it is definitely indicated, such as those with diffuse lymphoid hyperplasia and a watery mucoid discharge with no allergic taint. There is a difference of opinion as to its value in acute cases. Rathbone, in the *Journal of Roentgenology,* says that acute sinusitis is not suitable for X-ray. The X-ray as a diagnostic aid is of great value but, to be accurate, repeated grams must be taken as the membranes of the sinus, like the nose, may be swollen one hour and shrunk the next. And even after the picture shows a pathological condition, one has to determine the nature of the pathology before instituting treatment, as it is just about as futile to treat with X-ray a sinusitis caused by a sleeping abscessed tooth, as it is to treat a

nose with drops for a condition due to eating too much chocolate. Yet daily we see pathology attacked without regard to cause.

Kornblum, in the *American Journal of Roentgenology,* states, "The roentgenologist is frequently criticized for the fact that according to his reports nearly every one has sinus disease. Pathologically this is practicaly the truth", meaning that there are few people who do not have evidence of present or past changes. Transillumination, objective and subjective examination with a *good* history, are my greatest aids. I rarely use the X-ray, largely on account of economic reasons. I much more frequently use the internist as an aid, as with the latter I may locate the cause of the condition.

Diathermy is credited with relief of pain in acute sinusitis. But in cases reported by Alexander F. Lazlo, in the *Annals of Rhinology,* none of the antra cleared entirely, some had twenty-five treatments, and cases of chronic ethmoiditis with hyperplastic charges showed no benefit. In cases of sinusitis when bone necrosis is suspected, picric acid solution, followed by calcium carbonate solution suspension has proved of value.

In conclusion, my discussion is a plea for a more *specific treatment,* or that directed to the cause, *or* the underlying cause, rather than to the effect.

General Discussion of Papers by Drs. Gatewood and Blackwell

Dr. Dean B. Cole, Richmond: For a number of years internists have recognized paranasal sinus disease as one of the most frequent and troublesome complications of nontuberculous lung infections. Experience convinces me that it is always difficult and frequently impossible to obtain satisfactory results in the treatment of chronic lung infections when the tracheobronchial tree is being flooded with pus from the upper respiratory tract. Because of this I believe an effort should be made by the internist to accurately diagnose sinus disease so that patients needing treatment may be referred to the rhinologist for proper and adequate treatment.

We now use the X-ray routinely for diagnosis because all other diagnostic methods in our hands have not been satisfactory.

Dr. W. O. Bailey, Leesburg: It is important, I think, for a man who has to deal with sinuses, not to remain silent when the thing in which he is most interested comes up. The most auspicious thing in these papers is that the essayists have approached their problems with absolute candor. I think for an essayist to stand up and avow that we have done too many operations is a very happy and commendable thing. I want to pay my tribute to their sincerity.

I want to make just a few points very briefly. About eight years ago I thought I would see whether there was any difference in the results when an acute maxillary sinus was irrigated and when it was not. I do a general eye, ear, nose, and throat practice. I do not have a great deal of sinus work. I made a few tests and was very much surprised that the irrigation, in my hands, did not seem to influence the case to a very great extent. About six years after that I attended a meeting of the District of Columbia Medical Society. There was a nose and throat specialist there from the Massachusetts General Hospital, whose name I do not now recall. I was very much delighted to find he had had a similar experience.

I try to X-ray every sinus case I have and try to read the plates. I am not an expert reader, of course, but I try to get some help, and I find that I read them fairly well. By that method I find some things I certainly did not suspect; for instance, small polyps. I do not see how in the world one could find them otherwise. Very often patients do not want polyps operated upon, but at least their presence is known.

I do not see how one can have a comprehensive and convincing picture of the condition unless one has an X-ray picture taken. I think it is of economic benefit to the patient, because I do believe that to some extent it determines the duration and course of treatment.

About once a year I write to Drs. Christie, Groover, and Merritt, in Washington, to find out if they think X-ray treatment does any good. I wrote just before coming down here. They replied that they think X-ray treatment, especially in children with acute sinus infection, is very efficacious.

Another thing—I studied a few years with Dr. Hajek in Vienna. He advised against radical operations in all sinusitis, if possible, except the maxillary. He recognized, of course, certain imperative exceptions.

I do not believe the general practitioner wants to treat sinuses unless necessary, but I believe if a general practitioner sees postnasal pharyngitis or sees congested turbinates he does not want to neglect those conditions until the patient can see a nose and throat specialist.

One other point. The nonpurulent sinus infections can cause considerable discomfort, even more than in purulent cases where there is good drainage. I think, in this specialty, when we say "sinus trouble" we mean purulent sinusitis. However, bacterial cases, without pus, and often congestion alone, may cause a great deal of discomfort.

The problem of the swimming pool is a grave one. Swimming pools are being constructed everywhere. I tell my patients, where droplets of mucus are expelled, it is impossible for the chlorine in the water to kill all bacteria before another swimmer right behind comes in contact with it.

Dr. Gatewood closing the discussion on his part: My paper dealt chiefly with the matter of diagnosis and not of treatment. I think these patients with acute inflamed antra should be given some general treatment for relief and allowed time for the acute reaction to subside. If they do not improve, they should have irrigations for a limited time. There is an old adage, "Once an antrum is irrigated it is always irrigated". This idea probably originated from the fact that chronic cases were not diagnosed properly. These cavities may be irrigated indefinitely with little benefit. Frequently there is polypoid degeneration present and the only practical way to treat such cases is to clean out the old pathology.

Putting drops in the nose as a means of treating ethmoiditis is questionable. We know that on account of the anatomical structure we cannot get drops to enter the individual cells. Each cell is a separate compartment with a minute connecting aperture. Proetz has devised a little apparatus by means of which the air is aspirated from these cells by suction and at the same time fluid is released and drawn into the cells. As a rule, I do not think that drops could do very much good in treating infections in the antral cavity. Most of the acute conditions will subside or develop into the subacute stage. It is in the latter stage that local treatment is more efficacious.

As to the chronic types, you may as well not treat them and tell the patient that some definite surgical intervention is indicated. Chronic antra are frequently associated with bronchiectasis and manifest extensive pathology. I say "antra" because the antra are involved nine times out of ten due to the fact that the antrum is the sinus which does not have dependent drainage.

DR. BLACKWELL closing discussion: I first want to thank all who have entered into the discussion of these papers.

The subject is so large and has so many different sides that it is difficult to cover fully, even a small part of it in a paper. I have tried to give you some idea of the structures we have to deal with in studying diseases of the sinuses, especially in children, and the importance of keeping the surface of the mucous membrane of the nose and sinuses in a normal condition, if we would prevent our patients from having chronic sinus trouble, with its serious train of symptoms. I have tried to show with slides the importance of the region of the nose just under the middle turbinate bone, because at this point the sinuses, most often infected, have their entrance. I have stressed the fact that the sinuses are parts of the whole body and unless we can rid the body of the things which have caused the sinus trouble, we cannot hope permanently to clear up the trouble.

HEMANGIOMA OF THE VERTEBRAE.*

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Clinical recognition of hemangioma of the vertebrae is still of sufficient rarity to warrant presentation of any authentic case. We propose, therefore, to report a case from our clinical records, and to review the relatively meagre published data, in the effort to determine the importance of the condition as a clinical entity.

Case.—Miss E. T., white, age forty-three, was referred to our Hospital January 27, 1937, by Dr. D. L. Kinsolving, Abingdon, Va., through whose courtesy the case is reported.

Complaint: "Pain at the end of the spine", recurring at intervals for twelve (?) years, with nausea and vomiting of a week's duration.

January 17, 1925, the patient had been admitted complaining of backache and dysmenorrhea. Her past history at that time was negative except for a mild influenza and sore throat twelve months before. Her tonsils had been removed just after that illness. She had suffered also with obstinate constipation and recurrent hemorrhoids. She had been incapacitated about three days each month because of dysmenorrhea. Examination was essentially negative at that time except for retroverted uterus with a tight cervix. No X-ray examinations were made. The cervix was dilated and the uterus was manually replaced.

Now, on re-admittance, the patient stated that neither the backache nor the dysmenorrhea had been influenced by the previous treatment. On the other hand, she had had no important sickness in the elapsed twelve years. The pain she now complained of was coccygeal in location. There was no soreness, stiffness nor deformity of the cervical and thoracic spine, but the patient became increasingly "nervous" as palpation passed the mid-lumbar region, and she cried out, not as if hurt, but, rather, as if apprehensive, on palpation of the sacrum and coccyx. The skin seemed sensitive in the coccygeal region ("coccygodynia"). Other than this, there were no symptoms or complaints referable to the spine; and the laboratory findings, including a complete study of the blood chemistry, were not informative.

Quoting from the roentgenological report verbatim: "The first lumbar vertebra presents a striking change in structural characteristics. The first impression is that of an osteoporosis of the body, but close study reveals that the thinned-out areas are vertical, and

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that there is an accompanying increase in the vertical and parallel trabeculae of the body. The contour of the body and of the articular surfaces is not altered. A lateral exposure of the first lumbar region again reveals the vertical and parallel trabeculation of the body of the first lumbar vertebra, with the thinned-out areas between. The articular processes and spinous process are apparently not involved. The tenth, eleventh and twelfth thoracics are entirely normal in structure, as are the second and third lumbars.

Impression: The alteration in structure of the body of the first lumbar vertebra is quite striking, particularly in view of the normal osseous structure of all other bodies shown. This observer is under the impression that we are seeing here an angioma of the vertebra involving the first lumbar body. It is requested that these films be referred to some one more competent for further study and report."

The complaints which brought the patient to the hospital cleared up under treatment. It was only after the spine was X-rayed and some comment made upon the appearance of one of its segments, that she complained of *lumbar* pain. Then, the lumbar region was strapped with adhesive, with prompt relief. She was allowed to get out of bed and to walk, without recurrence of coccygeal or lumbar pain, and was discharged relieved on the nineteenth day.

Comment: The clinician (FHS) could not reconcile the clinical display with any disease of the first lumbar vertebra. In retrospect, the clinical impression was that of a neurotic woman in whom coccygeal pain is as often unexplained as is dysmenorrhea. The acute illness of a week's duration may have been explained by the prevailing influenzal infection, with neurotic vomiting, loss of morale, and, finally, disturbance of the body chemistry.

Even so, the appearance of this first lumbar segment needed explanation, and its significance determined. The X-ray films were submitted, in turn, to Dr. B. H. Nichols, of the Cleveland Clinic, and to Dr. B. R. Kirklin, of the Mayo Clinic, with positive substantiation of the diagnosis of hemangioma from both. Our interest thus aroused, we made a rather intensive search for other cases, with the aid of the libraries of the American Medical Association and of the American College of Surgeons. Our aim was to determine, first, the frequency; and, second, the nature and course of the disease. Why has the disease—if it be a disease-entity—been so infrequently recognized clinically, at least so rarely reported in clinical journals?

The result of this study seems worth reporting. We were able to find 110 references to hemangioma of *all* bones of the skeleton. Seventy-five refer to hemangioma of the vertebrae. The study of these references develops immediately an exceedingly interesting fact, namely, that vertebral hemangioma, rarely recognized clinically, is a rather common condition in necropsy material. From Virchow, in 1863, through Eigler, in 1930, Ireland[12] found 393 necropsy reports of this condition in the literature. Of these, Schmorl, reporting in 1927, had found 115 in 1,142 bodies, and Töpfer, in 1928, had reported 257 in 2,154 bodies—a combined total of 372 cases in 3,296 bodies, or an incidence of 11.28 per cent.

Clinically, by contrast, it appears that the first case ever to be diagnosed prior to operation or necropsy is credited to Nattrass and Ramage[6] as late as 1932. Prior to our case, we can find but thirty-two references to cases in the literature,[6, 14, 16, 38] only eight in this country.[5, 6, 11, 12, 16, 18, 21, 31] It is impossible for us to determine how many of these are cases diagnosed before operation or necropsy. So far as we can determine, however, ours is the twenty-ninth case so recognized. Three have been reported since our own recognition of the condition.[42]

The explanation of the apparent discrepancy of a necropsy frequency of approximately 10 per cent of all spines examined with this condition in mind, and clinical recognition in only thirty-two cases, seems to be the fact that spinal hemangioma usually gives rise to no symptoms or clinical signs. Of the twenty-six cases recorded by Bucy and Capp[5] in 1930, only twelve gave rise to symptoms, and fourteen were discovered at autopsy. Of course, then, the discovery of hemangioma in the living must be, in most cases, purely accidental or incidental to some other roentgenological investigation, when this anomaly may or may not be recognized.

This silence of symptoms or signs in the majority of cases can be explained by the fact, or apparent fact, that the condition rarely gives rise to symptoms until there is extension of the growth from the vertebral body into the spinal canal, and such extension is unusual. When symptoms do occur they have been almost invariably those of compression of the cord, namely, progressive weakness of the lower limbs, passing, possibly, to paraplegia, with or without pain—symptoms almost indistinguishable from

an extramedullary tumor of the cord. Even if the tumor does not break through the cortex to invade the canal,[5] the symptoms of compression of the cord must be due to bulging into the canal, restricting its space. It is characteristic of hemangioma of the spine, according to Spiller, when there is remission of pressure symptoms from day to day.

The size of the lesion may be from that of a pea or even of a "pepper seed" to complete involvement of one or more of the vertebral bodies. With two exceptions, the cervical vertebrae seem to have escaped. The upper thoracic vertebrae are much less frequently involved than the lower thoracic and the lumbar. In twenty-nine cases where we have definite information, sixteen were in the thoracic region from the third to the ninth segments, and all of these without exception had symptoms of compression myelitis. Ten cases were in the lumbar region, and all were symptomless, or had only vague symptoms such as backache, etc. The two cervical cases had symptoms, as did another where the location was not mentioned. The unanimity of symptoms of compression in the cervical and thoracic cases, while none of the lumbar cases were so characterized, is interesting. Of the ten lumbar cases, six involved the third lumbar; two the fourth lumbar; one the fifth; and one heretofore has involved the first lumbar.

Credit for the description of the typical roentgenogram belongs to Bucy and Capp[5] who state: "There is irregular absorption of the bony trabeculae, and thickening of the remaining vertical trabeculae, with resulting parallel vertical striations in the body of one vertebra, together with a loss of the normal homogeneous bony structure." The abnormal trabeculation may extend, however, into the arches and laminae. It may involve more than one body.

The importance of this description cannot be overemphasized. In fact, the interest of this lesion in most instances lies in the diagnosis—in its differentiation from other more malign diseases of the vertebral bodies. Such differentiation is possible only through recognition of the characteristic roentgenographic picture.

It should be emphasized that all hemangiomas of the vertebrae are benign, both clinically and microscopically. Neither metastasis nor recurrence has been recorded, and mitosis has never been seen. There is probably no such thing as "malignant hemangioma of bone".[5]

Now we come to a second most interesting and what we consider a highly significant observation. In our research we encountered a splendid description of the intrinsic circulation of the vertebral body, by Wagoner and Pendergrass.[41] In this article they make only passing reference to hemangioma as such, but they describe in detail the *normal vertical trabeculation* within the vertebral bodies, the existence of "large, extensive and intercommunicating venous spaces, channels or tracts," and express the belief that these spaces are true venous sinusoids. What is more important, they state: "From the standpoint of dynamics of circulation, it is interesting to note that the lumbar veins passing horizontally are in direct communication with the three great longitudinal or vertical venous systems. It is seen that the circulation within the bodies of the lumbar vertebrae is interposed in a shunt-like manner in the horizontal connections among the three venous systems. In consequence, changes in the general venous or arterial pressures, due to increased intra-cranial pressure, or to the necessity of the azygos, hemiazygos, or posterior external plexus acting as collateral channels for the vena cava, would be transmitted to the venous channels within the bodies of the vertebrae. It is suggested that *prolonged alterations in systemic venous pressure should give roentgenological evidences of such change by producing variation from the normal in the calcification of the bone trabeculae of the vertebral bodies.*

While the above applies specifically to their research on lumbar bodies, it may be expected that similar or allied circulatory arrangements are maintained in the thoracic region as well, and that the above prediction would be equally applicable.

Bucy and Capp,[5] in describing tissue removed from their case of hemangioma, state: "The intertrabecular spaces are filled with dilated cavernous spaces instead of normal myelogenous tissue. These spaces contain blood cells. Their walls are lined by a single layer of endothelial cells resting on a thin network of loose connective tissue." Wagoner and Pendergrass, in describing their *normal* tissue, state: "The two posterior and the two antero-lateral veins are in direct communication. They meet in the center of the body, and form a large reservoir. In general outline they form a letter 'H', the upper side-arms bowed outward. Within the vertebral body the walls of these venous channels is a limiting membrane composed of a single layer of flattened endothelial cells."

As early as 1929, Putschar,[43] from microscopic study of four cases found in sixty-five autopsies, concludes that "these lesions could be divided into two classes—the first, in which the lesion is a true neoplasm involving the entire vertebra and often causing compression of the spinal cord; the second, in which the lesion is a simple telangiectasis occurring in an already pathological vertebra."

We here insert one simple but striking observation. Töpfer, in his 257 necropsy reports, found age distribution as follows: 0 to 30 years, 9 cases, or 3.5 per cent; 30 to 60 years, 73 cases, or 28.4 per cent; and over 60 years, 175 cases, or 68.1 per cent.

So far, very few cases seem to have been treated intensively or systematically, except those showing compression myelitis. Here, laminectomy is necessary to save the cord from irreparable damage. Surgical intervention has been disastrous so far, three of the five cases so approached having died from uncontrollable hemorrhage and shock. Limited reports of X-ray therapy indicate that clinical response is immediate and progressive, although little change could be demonstrated roentgenologically as the result of such treatment. The mechanism of the effect of radiation in its direct action is that of the production of endarteritis and occlusion of vascular spaces. Its affect is on both input and output branches of the vertebral circulatory mechanism. The tendency, therefore, would be toward equalization of arterial inflow and venous outflow, with an attendant reduction in the locally increased pressure which in itself had inaugurated the condition known as hemangioma.

The apparent innocence of hemangioma of the vertebrae, and the fact that the lesion is usually confined to a single body, causing no structural distortion of the size or shape, coupled with the great disproportion between clinical and necropsy experience, have caused us to doubt whether all "hemangiomas" of the spine are, after all, true neoplasms. When the statement is made that these "hemangiomas" may be as small as a pea, or even as a pepper seed, we wonder whether this is not merely an anatomical anomaly, congenital or developmental. It may be that such an anomaly assumes pathological or pathogenic importance only when, for some unknown reason, this defect takes on neoplastic properties.

In fact, we have cited evidence which points to a certain degree of normal reservoir- or cavern-formation within the vertebral body. The question is, how extensive this formation may be and yet remain within the normal; how large such reservoirs become before the normal becomes pathological.

With such questions in mind, we have re-studied many roentgenograms showing the spine—those taken of the spine itself, and others in which the spine is shown incidentally. We believe we can see varying degrees of vertical striation, from the finest and most doubtful, to this case which has been called by high authority "typical" and "classic." For example, we present a film taken during routine gastro-intestinal examination, in which, again, the first lumbar vertebra shows very definite vertical trabeculation. A lateral view confirms the initial observation. This case was entirely symptomless as regards the spine, although the patient was both heavy and active.

SUMMARY AND CONCLUSIONS

We report what we believe is the twenty-ninth case of hemangioma of the spine in which the diagnosis was arrived at "before operation or necropsy."

2. Our case, like most, was symptomless, or, at most, complained at times of lumbar backache, and was discovered in the course of routine investigation of coccygodynia.

3. The available published material is reviewed, to find very few articles in American clinical journals, probably accounting in part for the paucity of reported cases.

4. The disparity between the frequency of the condition at necropsy and its infrequency in clinical experience is commented upon, and the conclusion is reached that—

5. Symptomless "hemangiomas" of the vertebrae may be mere anatomical anomalies of the venous channels, and that a relatively small number may become true neoplasms through unknown means.

6. True hemangiomas probably produce definite symptoms even prior to compression of the cord. Bnt these symptoms are not often correctly recognized or named. Progression of the lesion so that it presses upon the cord is probably infrequent, and in such event it would be easy to err in identifying the exact nature and pathology of the lesion.

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TESTS FOR PERIPHERAL CIRCULATORY EFFICIENCY.

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The peripheral vascular tree is so frequently involved in various diseases that it would seem necessary to carefully examine extremities in every individual complaining of discomfort in these areas. A painstaking history almost invariably will lead to a correct conclusion even after a superficial examination of peripheral structures. It is realized that only in isolated instances will a skin temperature apparatus or an oscillometer be available to the diagnostician, but there are several simple tests that may be employed in the study of peripheral vascular disease which require no special equipment.

One may perceive, from observation, unusual smoothness or pigmentation of the skin, thickening and hypertrophy of the nails, and the presence of ulceration, infection, or gangrene. The frequent absence of perspiration about an involved limb and the disappearance of hair growth about the digits will signify a lessening of the peripheral circulation. When vascular deficiency exists, elevation of the limb frequently causes an ischemic pallor which approaches a cadaveric appearance. This effect may be hastened by active exercise of the digits or by massage to express blood from the vessels. Lowering the limbs to the dependent position causes engorgement of the veins, a livid rubor of the skin, and cyanosis of the digits, so that they may assume a deep plum color. The presence or absence of pulsation in the brachial, radial, and ulnar arteries of the arm and the femoral, popliteal, dorsal pedis, and posterior tibial in the leg, may be determined by palpation. Difficulties are occasionally encountered from anomalies of the vessels, causing variation in the size or absence of pulsation. The real difficulty in palpation is due to the wide separation of the points where the vessels are superficial enough to feel their pulsation. As an example, there are eighteen inches between the popliteal and dorsal pedis arteries and in this area no knowledge of the character of the pulse can be obtained. An ordinary blood pressure apparatus may be used to demonstrate the magnitude of the pulse in this area. Of course an oscillometer is more sensitive but unless the pulse is completely absent, some oscillations may be obtained with a sphygmomanometer. A marked difference in temperature of the extremities may be discovered by simple palpation. Accuracy in evaluating temperature changes may only be obtained by use of a skin temperature apparatus.

The cutaneous histamine reaction is a valuable aid in determining the efficiency of the superficial capillary circulation. This test is performed by placing drops of a 1-1000 solution of histamine acid phosphate on the skin surface at various locations on the involved extremities, then pricking through the drop with a small needle. Normally one should obtain a flare and/or wheal within five minutes. When the circulation is seriously impaired, the reaction may not occur in less than eight to ten minutes and may be absent.

The claudication time may be determined on individuals suffering from intermittent claudication. One hundred and twenty steps are taken a minute and the time is noted when the patient complains of pain. This test is valuable in determining whether the patient has improved after treatment.

A qualitative estimation of vascular efficiency is demonstrated by the intradermal saline reaction. This test is performed by injecting a drop of normal saline solution to produce an intradermal wheal at various locations on the involved extremity. Normally the wheal will remain for a period of fifteen to thirty minutes. If there is lessened circulation, the wheal will disappear very quickly. This test is often of no value in venous and arterial obstruction, since it may only indicate a tendency to edema.

It has become increasingly important in recent years to differentiate between the spastic and occlusive elements in peripheral vascular disease because of the difference in treatment of these two conditions. Skin temperature reactions and oscillometer studies usually aid in the final classification of these disorders.

The temperature of the body surface is dependent on several factors, such as humidity, warmth of the surrounding atmosphere, recent movement of the extremities, and the extent of vasoconstriction at the time of the test. It is well known that the use of tobacco causes a definite drop in skin surface temperature, due to its vasoconstrictor action. Acetyl-

beta-methylcholine, histamine, and typhoid vaccine, usually cause an increase in skin temperature, due to their vasodilating action.

There are several methods that will cause release of vasomotor influence in peripheral structures: wrapping the individual in warm blankets, leaving the limbs exposed for testing; production of local anesthesia by injection of novocaine into a peripheral nerve, or the injection of novocaine into the spinal canal, which produces generalized vasodilatation. The usual procedure in our clinic is to immerse the extremities in water at 45° C. for thirty minutes at a standard room temperature and humidity. Skin surface temperature readings are taken prior to this immersion and immediately after the time period has elapsed. If there is an appreciable rise in temperature, the condition is probably one of spasm and not of occlusion. If there is very little change in the temperature prior to immersion and after immersion, the process is probably occlusion and not spasm. The possibility of spasm and occlusion being present in the same individual is not unusual. Then one must evaluate the degree rather than the height of temperature rise.

Although it is difficult to completely evaluate a peripheral vascular problem without a skin temperature apparatus and oscillometer, careful history analysis and examination of peripheral structures will usually enable the investigator to rule out any involvement of the vascular tree. The simple tests that have been outlined may be performed without hospitalization or any special technique and if there is any doubt as to the disease process at least one of the procedures should be performed.

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RECENT IDEAS ON LIVER FUNCTION.*

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The liver, anatomically the largest organ in the body, also performs more functions than any other organ. The close relationship of everyone of its activities with the activities of other organs and tissues has long prevented any more than a most superficial knowledge of its physiology. While even today much of the newer knowledge at hand is the result of experimental investigation, it is believed that a brief review merits our consideration.

As a homogeneous tissue, the voluntary muscle only exceeds the liver in amount. Its numerous activities and storage capacity are doubtless made possible by this large amount of hepatic tissue. Also significant is its dual blood supply. From the hepatic artery with its intrinsic motor mechanism and under the usual arterial pressure, it derives its oxygen supply. Under relatively low pressure and under the control of the vasomotor nerves of the abdominal viscera which drain into it, the portal vein conveys the absorbed products of digestion as well as possible poison of intestinal origin. The nerve supply is derived from the sympathetic and para-sympathetic systems. Their termination is not clear and denervation appears to affect hepatic function little. Histologically, the unit of structure is the lobule. There are three essential cell constituents; namely, the cells of the biliary duct system, the Kupffer cells, and the hepatic cells. The latter cells are responsible for the greater number of functions.

Among the functions, one of prime importance is that of maintenance of the blood sugar level, both in health and disease. Dehepatization of animals results in an immediate fall of the blood sugar level almost until the blood is free from sugar. Hypoglycemic symptoms and death result. Following the removal of the liver, the injection of adequate amounts of glucose prevents the development of hypoglycemia, or its administration to the moribund dehepatized animal restores the animal. The restorative function of glucose is specific. Many substances have been tried, but only a few will restore the hypoglycemic animal. These are probably converted to glucosce. It appears that levulose can be converted to glucose by both liver and intestine. The role of the liver in hypoglycemia from insulin is not clear. Insulin causes a more rapid lowering of sugar in the dehepatized animal than dehepatization alone. However, the liver is necessary for recovery from insulin hypoglycemia. The increased concentration of glucose in the blood is likewise influenced by the

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liver. There are two essential types of hyperglycemia, that following removal of the pancreas, and the transitory type which follows operations, excitement and drugs, as epinephrine. Removal of the pancreas results in hyperglycemia. Removal of the liver in a short while produces a marked fall in sugar and hypoglycemia. Glucose injection in such instances is of only transitory benefit. There is no increased blood sugar following anesthetic and operation in dehepatized animals, and excessive doses of epinephrine do not cause demonstrable rise in blood sugar. Glycogen is an interesting phase of carbohydrate metabolism. It is normally formed in the liver in carbohydrate metabolism and decreases on exertion or fasting. It is stored in voluntary muscle in equal amounts with the liver, though the percentage in the liver is higher. That in the liver maintains blood sugar concentration. The glycogen of muscles seems to be used wholly within this tissue, and plays little part in maintaining blood sugar level.

Protein is ultimately digested down to the various amino-acids of which there are about twenty-five known. They are in turn absorbed and go to the liver and muscles. These amino-acids promptly undergo one of three processes; (1) a small portion goes to rebuild protoplasm and to form new cells. This process is not understood. (2) A portion of the amino-acids are rebuilt back into protein and stored; little of this process is known, but storage is most likely in the liver and muscle. (3) The largest portion of the amino-acids is deaminized and used as fuel. The nitrogen is broken off, converted to urea and excreted. The remainder of the molecule is converted to carbohydrate and probably used as such. The liver is essential for this last fate of protein. Observations indicate that breaking of the amino-acid molecule into nitrogen and carbohydrate does not occur in absence of total hepatic activity. Urea cannot be formed; hence the liver utilizes the greater portion of the protein. Evidence points to the fact that deaminization and urea formation occur in the liver. Uric acid is a product of nucleoprotein metabolism. The relative amount of nitrogen excreted as such is not great, though most of it is eliminated in the urine. That remaining portion which is destroyed depends upon the liver. Ammonia is converted to urea most likely by the liver and excreted as such; in the presence of acids and acid-forming foods its excretion is marked. On the contrary, administration of alkali decreases its elimination.

There is no definite evidence that the liver plays a very important part in fat metabolism. It has been suggested that it prepares fats for oxidation and also that it changes fats into carbohydrates. The actual fat content of the liver varies both in the physiologic and pathologic state. There are marked changes in diabetic states and following the administration of hepatic poisons as chloroform, phosphorous and carbon tetrachloride. Following injury by hepatic poisons, the damaged lobule first loses its glycogen content, followed by an increased demonstrable fat. An interesting fact is that the glycogen content of the liver in both physiologic and pathologic states varies inversely with the fat content.

With few exceptions, the liver does not serve as a reservoir for nor control the utilization of minerals. The chief exception is iron. The liver has a capacity for storage transformation and utilization of iron. This capacity seems wholly confined to the Kupffer cells. The liver has been shown to store copper.

The secretion of bile is the best known function of the liver. Bile is formed in the hepatic cell, secreted into the bile canaliculi which lie between cords of hepatic cells and drain into small bile ducts in the periportal spaces at the periphery. The liver is secreting continuously, the quantity varying from 500 to 1,200 cc. daily. Its rate of flow and consistency depend upon gastro-intestinal activity and the type of food ingested. Its chief function is in relation to digestion. Its value in fat digestion is associated with its ability as an emulsifying agent, and in effecting solubility of fatty acids and soap and the absorption of fats. Three important constituents of bile are bile salts, cholesterol and bile pigments. The sodium salt of glycocholic and taurocholic acid occur in bile of all animals. These acids or their salts owe their effectiveness to their ability to lower surface tension. The bile's action is dependent upon a lowering of surface tension which insures fine emulsion of fats in the small bowel. The liver is usually regarded as the site of formation of the bile acids. Cholesterol, a high alcohol related to the terpenes, is present in all cells in free and combined state. It is most abundant in the tissue of the brain and nerves. Its source must be considered as derived from cholesterol of food plus that of cellular disintegration. That of the bile is obtained from the blood where three-fourths is in combination with fatty acid and one-fourth free. The liver apparently has a part in its metabolism because nearly all of

the cholesterol of bile is in free state. The cholesterol of the bile is reabsorbed from the intestine combined with fatty acid, evidence that it has an active part in digestion and absorption of fats. The bile pigments, bilirubin and its oxidation product biliverdin are now conceded to be excretory products only. Bilirubin is formed from hemoglobin and represents that portion of the molecule the body can no longer utilize, and therefore is excreted by the liver. The amount of bilirubin in bile varies. It is influenced by the destruction of erythrocytes, liberation of hemoglobin, and the diet. A great increase occurs following a change from a diet of meat to one of carbohydrates. Bilirubin is formed from hemoglobin by the cells of the reticulo-endothelial system. These cells are in the bone marrow, spleen and other lymphoid structures and in the Kupffer cells of the liver. Bilirubin is broken down in the intestinal tract or infected biliary tract to urobilinogen. This is in turn oxidized to urobilin which is absorbed from the intestine and eliminated by the liver or kidney.

The position of the liver between the portal and the general circulation would, one should think, from an anatomic standpoint justify the detoxicating function so frequently ascribed to this organ. There appears to be general acceptance that a great many substances reaching the liver are converted from a potentially toxic to a non-toxic state. Proof that the liver actually destroys toxic substances is rare. It may absorb such substances in the manner of a sponge and by releasing them in small amounts prevent deleterious action. They may be excreted by the bile, and the fact that many heavy metals are eliminated in this manner gives rise to such an assumption. However, the possibility of their reabsorption in the intestinal tract should be borne in mind. Finally, such substances may be destroyed by hepatic activity. Observations that poisons as chloroform and phosphorus injure the liver more than any other organ are interpreted as a protective function, and deaths from such causes reveal large amounts in the liver. In regard to its destruction of alkaloids, strychnine presents the best example. Experiments prove the liver the most important site for its destruction, acting in this instance as a detoxicating function. Certain substances commonly found in the intestinal tract are made non-toxic by the liver. Particles from the blood stream, such as bacteria, are thought to be removed by the Kupffer cells. A liver rich in glycogen is more resistant to poisons than one poor in glycogen. The glucose derived from this source combines with many toxic substances inactivating them.

In fetal life, until the bone marrow is sufficiently developed, the liver is the chief site for the formation of erythrocytes and leukocytes. It is shown to be a store house for substances from which hemoglobin is made. It seems to have some relationship to some of the essential normal elements of blood as a tissue. Evidence suggests its value in regard to control of fluid volume of the blood. Its tremendous vascular bed renders it one of the blood reservoirs of the body. The hemorrhagic tendency associated with liver injury bestows upon it a place of importance in regard to coagulating ability of the blood. The decreased fibrinogen and its inability to regenerate in dehepatized animals would indicate that the liver is the probable site of formation.

The phagocytic cells of the liver first described in detail by, and subsequently named in honor of Von Kupffer, are of considerable interest. They have been described as stellate cells because their cytoplasmic processes branch out in a star-like arrangement. Formerly thought of as a part of the endothelial lining of hepatic sinusoids, and consequently a modified endothelial cell, improved methods of study do not verify this opinion. Current views are that they are not a part of any stabilized system of histiocytes known as the reticulo-endothelial system. Marked mononuclear cells in a peritoneal exudate, injected into the portal vein experimentally were recovered in the sinusoids as fixed, functional histiocytes. Conservative opinion associates them with cells of the mononuclear type. Their ability to engulf foreign particles is remarkable. Of their known functions, their role in pigment metabolism is important. With the spleen, but to a less extent, they participate in red cell destruction, while in hemolytic jaundice they do most of the phagocytosis and are important in iron metabolism. Like other cells of the reticulo-endothelial system, they function in lipin metabolism. There is marked fat infiltration in diabetic lipemia and to a less extent in Niemann-Pick's disease. When autogeneous transplants are made into hepatic tissue, these cells proliferate, desquamate and migrate to the site of the transplant and transform it into connective tissue elements.

One of the most striking qualities of the liver, revealed by experimental investigation, is its ability to regenerate. As much as 70 per cent of the liver of

dogs may be removed, and in the course of a few weeks there is found to be a 90 to 100 per cent regeneration. The restoration does not result from the formation of new lobes but from an increase in the size of the remaining lobes. The restorative powers after partial removal depend for the most part upon an intact portal circulation. There appears to be a wide margin of safety in this organ; a relatively small portion of tissue is able to perform its many functions. This probably enables the human race to escape a great many ills that it would otherwise succumb to. One significant fact is that in the presence of hepatic injury animals do not tolerate a high protein diet, but may remain in a good condition on a high carbohydrate diet.

With a better understanding of the liver and its numerous activities, efforts are constantly being made whereby clinical application of this knowledge may be had. At present there are numerous tests applicable to liver function. This is due to the fact that no one test is sufficient to interpret all functions. Then too such tests as are now employed often fail miserably when information is badly needed. They are, however, often valuable and should be employed.

The greatest single indication encountered in practice in which all available information is desirable is jaundice. The classification of jaundice devised by McNee is simpler and more nearly represents the clinical viewpoint. It divides jaundice as follows: (1) That form in which bilirubin production exceeds the ability of the liver to excrete it or hemolytic jaundice: (2) Where production is normal but bilirubin accumulates in the blood from failure of liver cells and finer bile ducts to excrete it as a result of some toxic or infectious process; and (3) The reflux of bilirubin into the blood stream from obstruction of the larger bile passages. The newer classification by Rich considers the mechanism of jaundice. According to this, jaundice is of two types. Retention jaundice, in which the bilirubin circulating in the blood is not excreted by the liver cells, accumulates in the blood and in some way seems to be bound possibly to plasma proteins, does not pass through the kidneys (acholuric jaundice), and gives an indirect Van den Bergh reaction. Such a mechanism prevails in pernicious anemia, hemolytic jaundice, sickle cell anemia, paroxysmal hemoglobinuria, mismatched transfusions, cardiac decompensation, septicemia, malaria and lobar pneumonia.

In regurgitation jaundice, on the other hand, the liver cells excrete bilirubin which then escapes from the bile canaliculi into the tissue spaces and blood sinusoids of the liver either from obstruction of the larger bile ducts or from injury or necrosis of the liver cells. In such a condition bilirubin and whole bile get into the blood stream. The pigments are not bound and are excreted by the kidneys into the urine (choluric jaundice) and give a direct Van den Bergh reaction. Such is the jaundice of conditions which cause necrosis of liver cells as chloroform, carbon tetrachloride, phosphorus, arsphenamine and mushroom poisoning, and in necrosis resulting from such diseases as yellow fever, congenital syphilis, acute yellow atrophy and Laennec's cirrhosis. Where the regurgitation follows plugging, stricture or pressure, it manifests itself in calculi, neoplasms, stenosis, adhesions, enlarged lymph nodes and gummas. Catarrhal jaundice is also a regurgitation jaundice but the exact process remains undetermined.

Accurate observation of jaundiced patients requires a determination of the amount of bilirubinemia. The skin cannot be relied upon. Jaundice usually follows bilirubinemia by twenty-four hours, and in subsidence of the process the blood loses its bilirubin much more rapidly than the rate at which the color of the skin subsides. The two commonly employed tests to determine the degree of jaundice are the Van den Bergh reaction, a quantitative method. This is performed by precipitating the blood serum proteins with alcohol, by means of Ehrlich's diazo reagent developing the diazo color, then diluting until it matches a scale representing a known amount of bilirubin. In regurgitation jaundice a direct or immediate reaction occurs, while in the retention jaundice where the bilirubin is bound, a delayed or indirect reaction results. The average normal reading is 0.5 mgm. bilirubin per 100 cc's. of blood. The other test, the icterus index, is a colorimetric comparison of a given serum with a standard potassium bichromate solution. Its normal value is 5. Thus an icterus index and a serum bilirubin of 5 and 0.5 respectively should correlate and an index of 30 should correspond to a serum bilirubin of 3 mgms. This does not accurately work out, probably because bilirubin is lost in precipitation process, and also indirect acting or bound bilirubin gives a less yellow color than unbound. One may expect a direct Van den Bergh in 80 per cent of cases of only mild hepatic injury, practically speaking. Where

there is no clinical evidence of liver injury, one should expect not more than 1 per cent direct Van den Bergh reactions. High readings 30-50 mgms. bilirubin or 300 to 500 icterus index may occur in acute degeneration of liver or malignant bile duct obstruction; figures above 30 mgms. of bilirubin or 300 icterus index probably more often mean hepatic degeneration. Obstruction from malignant growth usually falls between 15 to 25 mgms. bilirubin or 150 to 250 icterus index. Readings of 10 to 30 mgms. of bilirubin or 100 to 300 icterus are generally obtained in milder hepatic lesions and intermittent or partial obstruction. From 2 to 10 mgms. bilirubin or 20 to 100 icterus index readings are found in subsiding intra-hepatic jaundice, chronic hepatitis following obstruction or intrabiliary infection, portal cirrhosis, syphilitic hepatitis, stone in common duct, and infectious forms of cholecystitis. The merits of the two tests can readily be recognized. The Van den Bergh with its quantitative estimation and the information to be had from the knowledge that it is either a direct or indirect reaction appears the more valuable test.

The blood cholesterol determination has also added to the sum of knowledge which may be applied clinically. The normal cholesterol value is 200 mgms. per 100 cc. of blood. With complete obstruction of the bile ducts the level shows a marked increase, reaching 300 to 400 mgms., or more, and is sustained until late in the disease. In partial or intermittent obstruction of calculus, the increase is moderate and usually 250 to 300 mgms. In various hepatic diseases there is usually no increase, or a decrease. A marked decrease is of significance in severe liver degeneration.

A test commonly used, employing the liver's ability to utilize carbohydrate, is the galactose tolerance test. This test has its chief value in differentiating intra-hepatic from obstructive jaundice. A positive test denotes hepatic degeneration with resultant inability to utilize carbohydrates, as the cause of jaundice. Galactose is converted to glycogen, and the kidney has practically no threshold to it; as long as it is in the blood some is excreted in the urine. Normally, on an empty stomach, 40 grams is handled rapidly by the liver; usually less than 1 gram, always less than 3 grams, is excreted in the urine in five hours.

Hepatic injury has for some time been observed to cause a reduction of serum protein, particularly the albumen fraction, with a reversal of the albumen globulin ratio to the extent that in some cases of advanced cirrhosis the ratio has been reduced to 0.3. However, there is not much reduction of the total serum protein. This is particularly important in relation to hepatic ascites and edema. The resulting decrease in osmotic tension allows the transudation in certain cases. It is likely that this factor and not so much portal obstruction occurs in cirrhosis.

Rough tests of excretory function have employed the use of dyes. Two are commonly used, the rose bengal test and the bromsulfalein test. The bromsulfalein is generally most satisfactory. Its value is greatest in the absence of jaundice. This dye is excreted almost entirely in the bile. Retention of more than a small amount at the end of an hour indicates hepatic injury. Magath reports 95 per cent retention in cases of suspected hepatic damage.

In conclusion, it might be added that while this discussion has attempted to review the more recent ideas concerning the physiology of the liver and a few of the more practical tests which will enable us to interpret disturbed physiology, the value of the physical examination and observation of the patient is not to be overlooked. Quite to the contrary. If this will enable us in any way more easily to interpret the physical findings, or suggest supplementary aids to the study of such cases, it will have served a purpose.

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ONE HUNDRED TWENTY UNDERWEIGHT CASES TREATED WITH INSULIN AND DIETS.

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Since our previous report[1] of fifteen underweight cases we have continued with insulin associated with a high caloric diet and wish to add the following number of cases which have been treated since March 24, 1936. To date we have had 135 cases. These patients are taken in consecutive order in this paper, regardless of the results of the treatment or the cooperation of the patient or the small amount of weight required. We did not in any of these cases attempt to add more weight than the amount requested by the patient in order to pass his civil service examination. The procedure was similar to our earlier work with the exception that the initial dosage of insulin was as high as thirty units per day in some cases instead of fifteen units as in the first fifteen cases. Twenty-two patients did not return for treatment after the first visit when the instructions and plan of treatment were outlined. The psychological factors are seen here operating at the outset. The patient is unwilling to be convinced that he can gain the weight and thereby obtain a $3,000 year position. Many of these patients could be regarded as self-destructive types of individuals so fully described by Menninger.[2] When consciously expressed, the reasons given for this negative attitude were mostly "fear of the needle, fear of the ill-effects from insulin."

GROUP 1

Twenty two patients did not return for treatment after the first visit. The reasons given are in the above paragraph. This group might be considered as failures due to lack of ability on the part of the physician to "sell" the idea.

GROUP 2

There are twelve cases in this group who did not return after the second visit. The reasons here were not ascertainable. Since case forty-one gained one and one-half pounds in one day it may be assumed that he decided to carry on by himself. As we further study this group we see case 42 Ca. gaining two and one-half pounds in two days and case 91 Mc. gaining six pounds in seven days. This group must be considered as failures as in group 1.

PT.	REQU. WGT.	TIME DAYS	WGT. GAINED	TIME DAYS
41Ct.	4 lbs.	11	1½ lbs.	1
42Ca.	5 lbs.	7	2½ lbs.	2
86Me.	5 lbs.	10	2 lbs.	2
91Mc.	20 lbs.	60	6 lbs.	7
94Mg.	9 lbs.	14	2½ lbs.	7
109Rg.	5½ lbs.	9	3 lbs.	3
111Rs.	6 lbs.	7	3 lbs.	3
113Sj.	15 lbs.	30	2 lbs.	4
120Sh.	8 lbs.	4	2¼ lbs.	2
127Tw.	1½ lbs.	2	1 lb.	1
129Wj.	6 lbs.	10	2 lbs.	6
130Wm.	6 lbs.	7	1½ lbs.	1

GROUP 3

Thirty cases gained over ten pounds. The maximum gain in this group was sixteen pounds in fifteen days. The highest dosage was ninety units per day.

PT.	WGT. GAINED	TIME	INSULIN
16	16½ lbs.	24 days	
35	10½ lbs.	14 days	u20 ½ cc. tid
17	12 lbs.	33 days	
55	10 lbs.	17 days	u40 ½ cc. bid
18	12½ lbs.	38 days	
60	10 lbs.	14 days	u20 ½ cc. tid
19	16 lbs.	15 days	
38	12 lbs.	29 days	u40 ¾ cc. tid
39	14¾ lbs.	9 days	u20 ¾ cc. tid
40	10 lbs.	18 days	u20 ½ cc. tid
43	14 lbs.	40 days	u20 1 cc. tid
65	10½ lbs.	30 days	u40 ¾ cc. tid
69	12 lbs.	11 days	u20 ½ cc. tid
73	10 lbs.	11 days	u20 ½ cc. tid
75	13½ lbs.	50 days	u40 ¾ cc. tid
48	10 lbs.	28 days	u20 ¾ cc. tid
77	12½ lbs.	43 days	u40 ¾ cc. tid
78	10 lbs.	33 days	u20 1 cc. bid
80	10 lbs.	62 days	
93	10 lbs.	20 days	u30 ½ cc. tid
99	16 lbs.	21 days	u40 ¾ cc. tid
96	10 lbs.	30 days	u40 ¾ cc. tid
97	15 lbs.	30 days	u40 ¾ cc. tid
100	13½ lbs.	16 days	u20 ½ cc. tid
116	16 lbs.	25 days	u40 ¾ cc. tid
117	10½ lbs.	26 days	u20 ½ cc. tid
119	10¼ lbs.	17 days	u20 ½ cc. tid
121	10 lbs.	26 days	u40 ¾ cc. tid
123	13 lbs.	17 days	u40 ¾ cc. tid
124	10½ lbs.	30 days	u20 ½ cc. tid

GROUP 4

Forty cases gained from five to ten pounds. The highest rate of increase was ten pounds in eleven days with a dosage of sixty units per day in most of the cases.

PT.	REQU. WGT.	TIME	WGT. GAINED	TIME	INSULIN	REMARKS
20Mu.			5 lbs.	11 days		
23Jo.			6 lbs.	4 days		
25Da.			7 lbs.	12 days		
26Ma.			6 lbs.	7 days		
28Fr.			8 lbs.	19 days		
29Ch.			6 lbs.	28 days		
31Ke.			8 lbs.	11 days		
33Bw.			6½ lbs.	5 days		
34Bc.			5 lbs.	6 days		
44Cj.	6 lbs.	6 days	6½ lbs.	6 days	u20 ¾ cc. tid	
45Ch.	11 lbs.	21 days	9 lbs.	15 days	u20 1 cc. tid	
47Cd.	6 lbs.	6 days	8 lbs.	5 days	u20 1 cc. tid	gained 3 lbs. after treatment
49Dj.	5 lbs.	7 days	5 lbs.	7 days	u20 1 cc. tid	
50Dj.	4 lbs.	6 days	6½ lbs.	8 days	u20 ¾ cc. tid	
52De.	7 lbs.	12 days	7 lsb.	12 days	u20 ½ cc. tid	
53Ew.	5 lbs.	10 days	5 lbs.	10 days	u40 ½ cc. tid	
54Ec.	8 lbs.	14 days	8½ lbs.	16 days	u20 ½ cc. tid	
56Ff.	7 lbs.	20 days	8 lbs.	20 days	u20 ½ cc. tid	urticaria
64Gt.	4 lbs.	8 days	7½ lbs.	8 days	u40 ¾ cc. tid	
66Hw.	4½ lbs.	5 days	5 lbs.	5 days	u20 ½ cc. tid	
68Hj.	7 lbs.	7 days	7 lbs.	7 days	u20 ½ cc. tid	
72Hi.	7 lbs.	21 days	7 lbs.	21 days	u20 ½ cc. tid	
88Mf.	10 lbs.	10 days	9½ lbs.	10 days	u40 ¾ cc. tid	
85Ma.	5½ lbs.	12 days	5½ lbs.	12 days	u40 ½ cc. tid	
89Mm.	9 lbs.	15 days	9 lbs.	18 days	u20 ½ cc. tid	
91Mc.	20 lbs.	60 days	6 lbs.	7 days	u20 1 cc. tid	discont. after second visit.
101Mt.	10 lbs.	13 days	9½ lbs.	13 days	u20 ¾ cc. tid	
102Mj.	7 lbs.	30 days	6 lbs.	6 days	u20 ¼ cc. tid	
103Nf.	9 lbs.	7 days	7¼ lbs.	7 days	u20 ½ cc. tid	urticaria
104-Oo.	7 lbs.	7 days	7¼ lbs.	7 days	u20 ½ cc. tid	
106Pw.	5 lbs.	7 days	6 lbs.	7 days	u20 ¾ cc. tid	
108Pg.	5 lbs.	5 days	5 lbs.	5 days	u20 ¾ cc. tid	
122Sj.	6 lbs.	7 days	6¼ lbs.	7 days	u20 ¾ cc. tid	
125Te.	5 lbs.	21 days	6¾ lbs.	14 days	u20 ½ cc. bid	
131Wt.	6 lbs.	15 days	6¾ lbs.	6 days	u40 1 cc. tid	
132Wb.	10 lbs.	14 days	7 lbs.	14 days	u20 ½ cc. tid	
133We.	6 lbs.	8 days	6 lbs.	8 days	u40 ¾ cc. tid	
67Hj.	7 lbs.	11 days	7 lbs.	7 days	u20 ½ cc. tid	
84Kj.	6 lbs.	30 days	6½ lbs.	30 days	u20 ½ cc. tid	
46Cf.	13 lbs.	35 days	6 lbs.	32 days	u40 ½ cc. tid	nervous and irritable. Treatment discontinued.

GROUP 5

Twenty-eight cases gained from one to five pounds.

PT.	REQU. WGT.	TIME	WGT. GAINED	TIME	INSULIN	REMARKS
21He.	4 lbs.	3 days	4 lbs.	3 days		
22Cl.	4½ lbs.	4 days	4½ lbs.	4 days		
24Ro.	2 lbs.	6 days	2 lbs.	6 days		
27Do.	4 lbs.	3 days	4 lbs.	3 days		
30Mp.	4 lbs.	8 days	4 lbs.	8 days		
32Bm.	3 lbs.	4 days	3 lbs.	4 days	u20 ¾ cc. tid	
41Ct.	4 lbs.	11 days	1½ lbs.	1 day	u20 ½ cc. tid	did not return after second visit.

Pt.	Requ. Wgt.	Time	Wgt. Gained	Time	Insulin	Remarks
42Ca.	5 lbs.	7 days	2½ lbs.	2 days	u40 ½ cc. tid	did not return after second visit.
51Dh.	4 lbs.	6 days	4 lbs.	6 days	u20 1 cc. tid	
76Jj.	4 lbs.	4 days	4 lbs.	4 days	u20 ¾ cc. tid	
79Kr.	2½ lbs.	4 days	2½ lbs.	4 days		
81Kf.	4 lbs.	8 days	4 lbs.	8 days	u20 ½ cc. bid	
86Me.	5 lbs.	10 days	2 lbs.	2 days	u20 ½ cc. bid	did not return after second visit.
87Mo.	5 lbs.	7 days	3½ lbs.	7 days		
90Mm.	4 lbs.	2 days	4 lbs.	2 days	u20 ½ cc. tid	
94Mg.	9 lbs.	14 days	2½ lbs.	7 days		did not return after second visit.
95Mr.	1½ lbs.	2 days	2 lbs.	2 days	u20 ½ cc. tid	
109Rg.	5½ lbs.	9 days	3 lbs.	3 days	u40 ¾ cc. tid	did not return after second visit.
110Rj.	4 lbs.	8 days	4 lbs.	6 days	u20 ¾ cc. tid	
111Rs.	6 lbs.	7 days	3 lbs.	3 days	u40 1 cc. tid	did not return after second visit.
112Rt.	4 lbs.	8 days	4 lbs.	8 days	u40 ¾ cc. tid	
113Sj.	15 lbs.	30 days	2 lbs.	4 days	u20 ½ cc. tid	did not return after second visit.
120Sh.	8 lbs.	14 days	2¼ lbs.	2 days	u20 ½ cc. tid	did not return after second visit.
127Tw.	1½ lbs.	2 days	1 lb.	1 day	u20 ½ cc. tid	did not return after second visit.
128Vd.	11 lbs.	30 days	2 lbs.	13 days	u40 1 cc. tid	failed to gain 120 Units a day given. No further gain.
129Wj.	6 lbs.	10 days	2 lbs.	6 days		did not return after second visit.
130Wm.	6 lbs.	7 days	1½ lbs.	1 day		did not return after second visit.
134Ww.	3 lbs.	4 days	3 lbs.	3 days	u40 1 cc. tid	

Reactions

The reactions were local and general.

General

FIVE REACTIONS

Pt.	Reaction
39Bw.	Severe headache
46Cf.	Irritability and nervousness
54Ec.	Severe headaches
78Kj.	Irritability and nervousness
75Ha.	Dizziness and Nausea

Local

THREE REACTIONS

Pt.	Reaction
56Ff.	Urticaria
80Kt.	Urticaria
103Nf.	Urticaria

Dosage

The initial dose ranged from five to ten units tid., increasing to as high as 40 units tid. daily. The majority of cases received thirty to sixty units a day.

Failures

Case 128Vd. Gained only two pounds in thirteen days and with 120 units a day, the last week, failed to gain further.

Case 46Cf. Gained only six pounds in thirty-two days. A description of this case is as follows.

CASE 46 CF.

Occupation—Taxi driver—weight stripped 147 pounds. Required weight fifteen pounds. Initial dose of insulin given was ½cc. u20, three times a day.

On October 2nd, two days later he had gained four pounds but reported he was nervous and presented slight tremors. The insulin dosage was reduced to five units, three times a day. On October 5th, he weighed 149 pounds. He stated at this time that he had not taken insulin for two days, having broken his syringe. He continued with five units three times

a day until October 9th. At this time his weight was 151 pounds making a total gain of four pounds in ten days. Urticaria had developed at this time, so the brand of insulin was changed and the dosage increased to sixty units daily. On October 14th he increased his weight by another one-half pound. The insulin was increased to ninety units. On October 15th, injections were discontinued as the patient had a severe bronchitis with temperature of 103. On October 18th 1cc. of u40tid was given; on October 21st the weight had increased five pounds since the beginning of treatment. On October 26th an added one pound gain was recorded. Here the patient began to complain of irritability and nervousness, so insulin was discontinued and Ryzamine B one spoonful, three time a day (Burroughs, Wellcome and Company) was given. Dexin (Burroughs, Wellcome and Company) was substituted for sugar. Four days later, on October 30th, the patient had lost two pounds. He was immediately given ½cc. u40tid. On November 2nd he had regained his two pounds making a total of six pounds added in thirty-two days. He did not return for further treatment.

ALLERGY AND INSULIN

We find that any of the insulins on the market can be used with safety. In our work we employed Insulin (Lilly) and Insulin (Squibb). When allergic symptoms developed from the use of Insulin (Lilly) which may occur at any time during the course of injections, Insulin (Squibb) was substituted and no reactions were evident. On the other hand when Insulin (Squibb) was prescribed and allergic reactions developed, we substituted Insulin (Lilly) and the symptoms disappeared. In a few cases both makes of insulin caused reactions; then we prescribed Insulin "Special" (Lilly) which is not on the open market, as far as we know. Occasionally, but in rare instances, Insulin "Special" (Lilly) also produced urticaria. In such cases we employed Zinc Insulin Crystals* and so far have had no urticarial reactions. In the near future we expect to submit a report of our experiences with the solution of Zinc Insulin Crystals (Lilly). The solution of crystals has advantages in that it is only necessary for the patient to receive one injection daily and so far it has not been the cause of allergic symptoms. We can state, however, that so far our results have been satisfactory with Zinc Insulin Crystals (Lilly).

*Supplied through the courtesy of Eli Lilly and Company for research purposes.

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MONOCYTIC LEUKEMIA.

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The following is a preliminary report on two cases of monocytic leukemia which were diagnosed at the Shenandoah Hospital, Roanoke, during the year 1937-1938.

The first case was a well-developed and nourished white male, age thirty-nine, who came to the hospital on October 26, 1937, with a sore throat, tonsillar and anterior cervical glands enlargement. Six weeks prior to this indisposition, he had been feeling weak, with generalized aching, tired feeling, and severe headaches.

On physical examination, the soft palate was inflamed, the left tonsil was enlarged, cryptic and gangrenous, covered by a greyish-white membrane, the right tonsil enlarged, with markedly enlarged and indurated anterior and posterior cervical glands. Culture on throat was negative and smear showed streptococci. The blood picture on October 27 revealed:

Hgb.	R.B.C.	Index	W.B.C.	Polys.	Juvenile
70%	3,590,000	1.	27,600	7%	1.

Stabs.	Segs.	Lymphs.	Monos.
1	5	2	91

Achromia fragmented R.B.C.

The urine showed albumen 1 plus, occasional W.B.C. and R.B.C., few hyaline and granular casts; large number bacteria. Wassermann, negative. The

impression was either acute mononucleosis or malignant neutropenia.

Course in hospital: temperature ranged from 102 degrees to 96 degrees, pulse, 80 to 100, respiration, 20 to 22. Treatment was symptomatic with Prontylin. Throat cleared and glands reduced in size. Patient was discharged November 2, 1937, in ambulance, feeling better, but still having headaches.

On November 15, 1937, he developed infection in the right lower eyelid which was treated by the eye specialist. About three or four days later, he began having swelling in his face, finally a lumpy, indurate swelling developed on the left portion of the face just beneath the parotid gland, involving almost entirely the lateral region of the left mandible, unattached to the bone, but adherent to the skin.

On November 26, 1937, he was re-admitted to the hospital because the left jaw hung indurated and swollen. The anterior and cervical glands on the right were enlarged and indurated. No other glands palpated, and spleen not palpable as yet.

The eye ground examination of both eyes revealed no definite findings except chorioretinitis. Agglutination tests negative, blood culture negative. X-ray revealed no bone involvement. Blood picture presented leukemia, presumably of the monocytic type, because a peroxidase test revealed medium grey granules in the W.B.C. Treatment was symptomatic, plus X-ray treatment of left parotid region, chest and mediastinum, and transfusions.

Summary: Patient running septic temperature, with swelling of gums, developed infection. Several examples of the blood picture and count:

DATE	HG.	R.B.C.	IND.	W.B.C.	MONO.	SEG.	LYMPHS.
10/30/37	85%	4,000,000	1.05	27,600	91	5	2
11/27/38	70%	3,590,000	1.00	90,800	95	2	3
11/28/37	62%	3,100,000	1.	88,000	93	2	4
11/29/37	65%	3,200,000	1.04	82,200	94	1	5
11/30/37	60%	2,910,000	1.03	80,100	95	2	3
12/2/37	50%	2,490,000	1.04	78,000	94	3	3
12/4/37	60%	3,070,000	1.00	79,100	95	2	3
12/6/37	55%	2,790,000	1.01	63,600	95	2	3
12/8/37	48%	2,600,000	1.04	34,000	96	2	2
12/10/37	45%	2,210,000	1.02	22,400	96	1	3

The patient died December 16, 1937, and at autopsy, marrow specimen revealed disintegrated red and white blood cells.

Slides of the case were forwarded to the Medical College of Virginia and Dr. J. H. Scherer, too, felt the case one of monocytic leukemia.

The second case was a white female, age forty-seven, who came to the hospital because of sore mouth and sore gums, beginning a week before Christmas. An area about one and one-half inches involving anterior portion of hard palate on right side became ulcerated, bleeding, infected and painful. Smear revealed Vincent's. Her other complaint was that of excessive vaginal bleeding during periods for the past year. She had been receiving treatments for ulcerated cervix during the past three months. Her general condition was one of dibilitation and weakness.

On examination, the mouth condition and eye grounds were noted. There was retinitis, painful abdomen, uterus tender, no enlargement, adnexa negative, cervix lacerated, bleeding freely. Reflexes negative.

Patient developed infection in left ear and had free discharge of pus. Only W.B.C. found in smear.

URINE

Color: amber.	Reaction: acid
Sp. G.: 1,020.	W.B.C.: 8-10 per H. P. F.
Albumen: 4 plus.	Blood: 4-5 per H. P. F.
Sugar: Negative.	Ep. Cells: many.
Acetone: Negative.	Casts: few hyaline and granular.
Diacetic: Negative.	
Bile:	Bacteria: very large number.
Character: hazy.	Crystals:

Remarks: few mucus shreds.

Several reports on slides.

DATE	HB.	R.B.C.	IND.	W.B.C.	MONO.	SEG.	LYMPHS.
1/13/38	55%	2,660,000	1.05	23,000	93	1	7
	R.B.C. Achromia, nucleated red blood cells, etc.						
1/17/38				46,400	96	1	3
	Many nucleated red cells, large amount of achromia and polychromatophilia.						
1/20/38	55%	2,640,000	1.05	34,000	94	3	3
1/25/38				22,000	96	1	3

Smear and culture:

1/13/38 Smear shows a large number of Vincent's bacilli and spirilla.

One citrate transfusion was given the patient, several deep X-rays to the pelvic region, gentian violet to gums, and one intravenous neoarsphenamine.

Patient ran a septic course and died on February 1, 1938. No autopsy permitted.

Shenandoah Hospital.

THE METABOLISM AND THERAPEUTIC USES OF SULFUR AND SULFUR COMPOUNDS.

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The sulfur that we know today is of historic value, its usage being both ancient and honorable. The long continued usage of sulfur has depended on the quality of service this substance has rendered. It is doubtful if any other one element does as many different things as sulfur and does them as well. Sulfur is referred to as a "building stone". It is known that sulfur is characteristic of the epithelial cells, that it is essential for the cell metabolism of every gland of internal secretion and tissue in the body, that there is a metabolic preference for proteins rich in sulfur, that some sulfur-containing unit occupies a key position in the protein molecule, that it hastens and facilitates a transfer of oxygen and oxidative substances in the living cells, and that the potency of insulin, vitamin B_1, important amino acids and other substances is parallel to their sulfur content. In the light of our present knowledge of this far-reaching element, it is reasonable to believe that a further tapping of the fertile and prolific sulfur field through expanding interest and additional research will reveal undisclosed ramifications into allied channels of medical usage.

Because of the increasing importance placed on colloidal matter with reference to the living organism, and the frequency with which the medical profession is confronted with new therapeutic agents in the colloidal state (sulfur as well as others), we shall first describe briefly colloidal phenomena and some of their relations to medicine.

COLLOIDAL CHEMISTRY AND SOME OF ITS RELATIONS TO MEDICINE

The old schools of physics and chemistry defined three states of matter, namely solid, liquid and gaseous. There is a fourth state, colloidal state, which is not included in this classification, and its existence has recently been justified on the grounds "that nature does not like to skip". Nature's processes are evolutionary; and in the division of matter there is a gradual subdivision (change) of particle sizes from that of the molecule to that of matter in mass. Although the colloidal state is as old as living matter itself, and fundamental to all protoplasm the science of colloidal chemistry is only in its beginning. It was from a study of the consistency of protoplasm that colloidal chemistry developed. Colloids constitute heterogenous systems being composed of particles of matter of many dimensions, limited only by certain arbitrarily fixed magnitudes. Particles of matter with diameters as large as $mm/10^4$ and as small as $mm/10^6$ are considered to constitute the range of colloidal particle sizes. The ability to exhibit the Tyndall phenomenon and Brownian movement also characterizes colloids. On precipitating from a true solution all substances first enter the colloidal state but many pass immediately into the ordinary coagulated form. The intermediate state (e.g. ordinary fog) between the gaseous and liquid phases exists as drops of liquid suspended in a gaseous medium (air). Likewise, during the transition from the liquid to the solid state a similar evolutionary process takes place (e.g. the precipitation of a salt from a solution). First very small liquid droplets appear which gradually coagulate into solid particles of relatively large dimensions. Some substances, for example proteins, undergoing transition usually remain in this intermediate state.

Surface Energy. Colloidal chemistry introduces to us a world of neglected dimensions. The relatively enormous surface of a colloid compared to its mass is its most important property. For each unit of surface exposed every solid substance possesses a specific electrical, physical and chemical activity. The characteristics of a given substance are magnified proportional to the increase in the surface caused by the change into the colloidal state. The increase in the surface of a fixed mass of any substance is inversely proportional to the change of the diameters of its constituent particles. One gram of a substance with a specific gravity of unity and particles of average colloidal size has exposed six hundred (600) square meters of surface, while the same material as one cubic mass has a surface of only six (6) square centimeters.

Large surfaces represent a great deal of energy, which we speak of as surface energy. Until recently this tremendous source of energy was neglected by the scientific world. It is now known that nature is full of this kind of energy, and we believe that energy supplied by substances in the colloidal state is one of the most useful and efficient forms. The ordinary mechanical engines are rigid and limited, but the cells of living organisms, having proteins and lipoids in the colloidal state as their chief ingredients, gain energy from a non-rigid nucleus. The colloids form a vast surface structure not visible under the microscope, but continuously and uniformly supplying energy for the operations of the cell.

Colloidal ferments establish the time and place for metabolic processes in the tissue fluids as well as in the cells themselves. Glandular secretions, food absorption and many therapeutic measures are made possible by osmotic pressures established by colloids. Muscular action is unquestionably due to forces caused by the surface energy of colloids. Alterations in the protoplasm of nerve cells due to strains on the nervous system are brought back to their normal state of equilibrium under the forces created by this same source of energy.

Stabilizing and Protective Forces. Facts are slowly becoming available which verify the hypothesis that the function of the cells depends on an interchange between the electrically charged ionic products of salts and colloids. Colloidal surface energy seems to stabilize the bio-electrical currents which regulate the function of all organs.

A definite concentration of certain ions must be present in the body fluids to stabilize the colloids in order that the cells function normally. The hydrogen-ion and hydroxyl-ion relationship is of first importance, since by maintaining a specific concentration of these ions an equilibrium condition of the human system is retained throughout life. Certain other ions, e.g. those of sodium, potassium and calcium in the ratio of 100:2:3, are important to retain the correct hydrogen and hydroxyl-ion concentrations. Protective forces are always at work guarding the normal relationship between all parts of the organism, which we may also say is the maintenance of the body colloids in a normal condition. The achievement of a unity may be said to be the purpose of all cell functions. A classical example of a departure from this goal is the inflammatory process including such diseases as edema, rheumatism, infections, etc. The diagnostic value of colloidal phenomena in the practice of medicine is concretely illustrated by many well known laboratory tests. The detection and interpretations of colloidal reactions, exhibited by Wassermann's test, blood and urine analyses, sugar and protein tests (Fehling's, Benedict's, Heller's ring test, etc.) give the answer to the possible existence of a pathological condition.

From the foregoing the importance of colloidal chemistry to therapeutic medicine is evident. The effectiveness with which artificial remedies can be applied depends on how well the protective and curative methods of nature are understood. We must also realize that in spite of the strong protective forces within the living body to prevent agents, which enter body fluids, from altering the function of certain cells, that clinical investigation shows that variation of cell function can be affected. Consider for example the hardening effect of calcium on the diluted colloids of inflammation and the softening effect of iodine therapy on the colloids of sclerosed vessels. Many modern therapeutic agents are fundamentally colloidal, e.g. proteinotherapy, immunization antigents, ferments, etc. In affecting their actions they usually alter certain colloids of the body. Colloidal chemistry has also shown us new methods for applying inorganic drug therapy. Certain substances, heretofore considered too feebly soluble, and in some instances too toxic when in true solution, have been converted into colloidal solutions possessing valuable therapeutic properties without untoward actions. It is in fact difficult to separate any therapy from colloidal chemistry. One can safely say that a successful therapy always affects certain colloids in the body.

Colloidal chemistry, although still in its infancy, has given more insight into the life of the cell than any other science since the introduction of the microscope. It renders a service in the establishment of a pathology as well as a rational therapy.

THE PREVALENCE AND DISTRIBUTION OF SULFUR IN THE BODY

As more work is done on the composition of biological material more sulfur bearing compounds are brought to light. Although the quantitative amount of sulfur in the body is small (0.25 per cent) compared with the quantities of such elements as carbon, hydrogen and oxygen, it is indispensable to the vitality and activity of the organism. A disturbance in the sulfur equilibrium produces pathological changes

of unpredictable consequences. Many of these changes are transitory and disappear without excessive discomfort, provided the sulfur balance is reestablished before the transformation goes too far. In an analysis of the total sulfur content of the organism from birth to maturity, Klauder and Brown found that the total sulfur content correlates growth; as growth decreases with the age of the subject the sulfur content likewise decreases. Sulfur is characteristic for epithelial tissues as iron is for the red blood cells and calcium for the bones. The presence of sulfur is known to be fundamental for the cell metabolism of every gland of internal secretion and tissue of the body..

A distribution of sulfur in the body occurs as: ordinary tissue proteins, found in hair; mucoitin sulfuric acid, in mucin; chondroitin sulfuric acid, in cartilage; glycoproteins, in tendons; vitreous humor, in cornea and connective tissues; glutathione, in all active cells; insulin, in the pancreas; cystine, in finger nails, hair and tissues generally; taurocholic acid, in bile; sulfocyanates, in saliva; ergothioneine, in red blood corpuscles; vitamine B^1, in the liver and pancreas; melanin, in most hard tissues as hair, choroid, etc.; urochrome, in the urine; and sulfolipoids, in nervous tissue. Inorganic sulfates occur in the body fluids generally.

An Estimation of the Amount of Sulfur Required by the Human Organism Daily

Utilizing data given by Hawk and Bergeim, we learn that the neutral sulfur excreted is normally about 25 per cent of the total sulfur, and on considering the range of all cases we find that 75 to 95 per cent of the total sulfur in the urine is sulfate, the proportion being greatest while the person under observation is eating a high protein diet. The total quantity of sulfur excreted in the urine daily by a normal adult on a mixed diet is between 0.6 and 1.2 grams, with an average of about 0.8 gram. If we add 25 per cent of this to account for the sulfur lost in hair, nails, feces, perspiration, breath, etc., there will be on an average a loss of 1 gram and a maximum loss of 1.5 grams of this element by each person daily.

To maintain an equilibrium condition each person must consume between 1 and 1.5 grams of sulfur daily. A standard diet given by Atwater calls for 127 grams of proteins, 113 grams of fat and 494 grams of carbohydrates with a combined fuel value of 3,500 calories. A standard daily diet then contains about 1.6 grams of sulfur, slightly more than we estimated to be lost by the organism. However, everyone does not always consume a standard diet. When a small amount of sulfur is contained in the food eaten, a correspondingly small amount is excreted. The fact should be kept in mind that a large part of the sulfur contained in foods is utilized to detoxify metabolic products of foodstuffs themselves. In certain instances there may not be a small excess available to combat abnormal intoxication, thus requiring the sulfur of the tissues to be diverted. It is no doubt under such circumstances that marked benefits are derived from a few grains of uncombined sulfur when administered for its nutritional value and detoxifying action.

The following data gives an estimation of the percentage by weight of sulfur found in some of the more common foodstuffs:

Oysters	.02
Horseradish	.02
Dried beans and nuts	.02
Oatmeal	0.2
Meats (largely lean)	0.15 to 0.2
Fish	0.15 to 0.2
Eggs	0.15 to 0.2
Wheat (whole)	0.18
Cabbage greens	0.17
Water cress	0.17
Bread	0.1 to 0.2
Bacon	0.1
Rice	0.1
Fruits (dried)	0.05 to 0.2
Onions	0.07
Milk	0.035
String beans	0.03
Potatoes	0.03
Vegetable (average green)	0.01 to 0.03
Fruits (fresh)	0.01 to 0.015
Berries (fresh)	0.01 to 0.015
Fats	0.01
Butter	0.01

Metabolism of Sulfur in the Body

Sulfur of first importance to life is largely found combined in protein substances. A surplus of proteins occurs in living matter only when necessary for the formation of tissues in the developing young, as in eggs, seeds and milk. Proteins are unique foodstuffs whose primary function, in addition to supplying energy, is to build up and repair living tissues of the organism itself. They are of paramount importance in conferring on the various cells their biological specificity. The protein molecule is composed of amino-acids linked together; twenty-two or

more of these acids are known, several of which have a high sulfur content.

Under normal conditions the anabolic and catabolic phases of sulfur are in equilibrium. Thiopexy is the term designating the fixation of sulfur in the organism. It is generally considered that proteins containing sulfur undergo three distinct metabolic changes. First, sulfur is degraded from the protein molecule in the form of neutral, unoxidized, or partly oxidized sulfur—occurring in such compounds as methionine, glutathione, cystine and cysteine. This form is eliminated from the body in such substances as: cystine, taurine, cysteine, hydrogen sulfide, ethyl sulfide, thiocyanates, oxyproteic acid, allyloxyproteic acid and certain conjugated compounds (mercapturic acids). Second, a greater part of the neutral-sulfur is not eliminated as such, but undergoes oxidation to produce sulfates or the sulfuric acid form. Most of this oxidized form is excreted in the urine as the sodium, potassium, calcium and ammonium salts. Third, a portion of the oxidized sulfur is conjugated with putrefactive bodies (phenol, cresol, indole, skatole, alcohols and amines) that are absorbed from the intestines and foci of infection, and excreted through the kidneys.

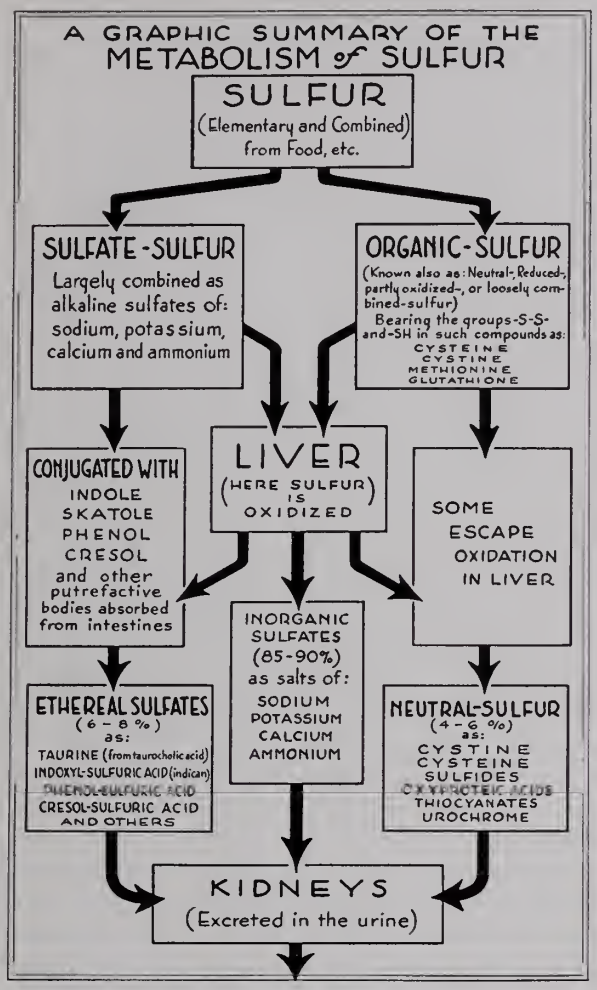
"The great bulk of sulphur loss to the body occurs through the kidneys in the form of inorganic sulphur, neutral sulphur and ethereal-sulphate sulphur."[1] This sulfuric acid arises principally from the oxidation of exogenous as well as endogenous protein material. A relatively small portion is derived from ingested sulfates. "Fairly large amounts of sulphur are secreted in saliva."[1] The amount of sulfuric acid excreted in the urine is increased during pathological conditions involving acute fevers, suppurations and by all diseases marked by a stimulated metabolism, whereas a decrease is observed in those diseases accompanied by a loss of appetite and diminished metabolic activity. "In urine increased sulphur elimination is found in such conditions as melanotic sarcoma, carcinoma, diseases of the liver, acute intestinal obstruction and cystinuria."[1] Loss of sulfur from the body also occurs in the shedding of hair, nails, skin, etc., in the bile, saliva, breath, perspiration, and gastro-intestinal secretions.

There is a preferential metabolism of sulfur-rich proteins. While the metabolism of sulfur in the body seems to revolve around the compounds cystine and glutathione, methionine has recently been found to hold a place of prime importance also.[3] Sulfur appears to be a mobile metabolic unit accessible for early catabolism. The evidence for preferential metabolism of sulfur-rich proteins is attested to by the early excretion of cystine in the urine. Wilson[9] explains the labile role of sulfur in both phases of metabolism by saying, "cystine or some unit containing sulphur occupies a key position in the protein molecule or even in the living protoplasm whereby it is the first to be split off in catabolism and the first to be retained in anabolism."

Sulfur plays a role in oxidation-reduction processes. The unicellular paramecium can synthesize carbohydrates, fats, proteins and protoplasm from inorganic compounds if sulfur is present. If sulfur is not present there is an accumulation of fat, resulting in death by what appears to be fatty degeneration. The conclusion is, the fat is synthesized from starch and the sulfur oxidizes the fat as fast as it is formed, but if sulfur is not present fat does not oxidize and consequently accumulates. Sulfur may be thought of as an agent supplying energy to the individual cell, which is a seat of continuous chemical activity. "Sulphur-containing bodies, especially those having sulph-hydryl forms, such as cystine, cysteine, and the closely-related amino-acid methionine, are the sources of glutathione which is most necessary for cellular respiration and therefore life, and also taurine which is concerned in the formation of taurocholic acid of the bile."[1] There is an analogy between sulfur and oxygen in kind and scope of activity; and in practically all organic compounds sulfur can replace oxygen. Sulfur plays a multiple role in oxidation-reduction processes of the body. In the reduced easily oxidizable state as in cystine sulfur seems to tie itself to oxygen. When the sulf-oxy combination comes in contact with a selected environment, e.g. liver cells and material to be oxidized, it is logical to believe that oxygen is released. Normal oxidation then takes place, liberating energy for the promotion of protoplasmic activity. Cysteine, which is "auto-oxidizable," is converted into cystine, e.g. 2 Cysteine + Oxygen = Cystine + Water. Glutathione, an "auto-oxidizable" compound contained in every living cell, plays an important part in the oxidation that occurs there.

SULFUR IN DETOXICATION

Colloidal sulfur enters the hepatic circulation, combines with toxins and secures their elimination through the kidneys. The blood stream is thereby freed of poisons and proceeds unhampered in its



various physiologic reparative functions. Improvement in mental and nervous disturbances is often so marked as to indicate that the central nervous system is also highly susceptible to endogenous toxins. "Detoxication seems, indeed, a prominent role of the system cystine, cysteine, and glutathione. In the majority of the arthritic cases the low cystine content of the finger nails seems to imply an intoxication factor which draws on the sulphur complexes . . . and thus diverts the sulphur from its normal channels. . . . The increase of the cystine content of the finger nails of a number of cases of arthritis, after injection of sulphur, implies that the sulphur directly or indirectly, after change by the body, combines with the injurious material and thus spares the normal body sulphur complexes from being diverted."[8] The mobilization of sulfur from normal deposits in the body results in a deficiency of the loosely bound sulfur. Virtue *et al* and Stekol have demonstrated that toxic substances when administered to fasting animals are conjugated with endogenous sulfur and excreted as harmless compounds; e.g. cystine (dicysteine) is employed for the detoxication of bromobenzene when the latter is ingested. Cysteine becomes conjugated with bromobenzene followed by acetylation producing bromophenylmercapturic acid.

$$\underset{\text{Bromobenzene}}{BrC_6H_5} + \underset{\text{Di-cysteine}}{(S\text{-}C_3H_6O_2N)_2} + \underset{\text{Acetic Acid}}{C_2H_3O_2H}$$

(yields)

$$\underset{\text{Bromophenylmercapturic Acid}}{BrC_6H_4\text{-}S\text{-}C_3H_5O_2N\text{-}C_2H_3O} + \underset{\text{Cysteine}}{HS\text{-}C_3H_6O_2N} + \underset{\text{Water}}{H_2O}$$

A similar mechanism may be used to explain the detoxication of naphthalene. The excretion of sulfoconjugated compounds was evidenced by a rise in the output of total sulfur in the urine and by a reduction in the sulfur content in internal secretions. It was also shown that in the absence of sulfur in the diet the nitrogenous products were excreted in the urine as urea; while with an adequate supply of sulfur in the diet the nitrogenous breakdown products of the attacked tissue were utilized for its resynthesis.

The highly toxic base, histamine, loses its dangerous physiological activity when combined with sulfur as thiolhistamine. Forbes[4] and Neale state that "Indole was found in significant amounts in many cases of chronic arthritis, pellagra, diabetes mellitus, tuberculosis, toxemia of pregnancy, congestive heart failure, and lobar pneumonia, but not in the urine of normal subjects." "Sulphur is a major factor in the detoxification of indole." The latter substance, after being oxidized by the liver to indoxyl, combines with sulfuric acid and is excreted from the organism as the neutral potassium salt, indican. Phenols, amino-bases and alcohols may also be tied with sulfates and excreted without doing harm to the body. It has also been demonstrated that cyanides and carbon monoxide are converted into non-toxic sulfocyanates (rhodanantes) and carbon sulfoxide by the element sulfur. Glutathione as well as thiosulfates have been found to protect animals from lethal doses of arsenic .

Some Sulfur-Containing Compounds Promoting Biological Processes

Sulfur and sulfur compounds are essential for the composition and function of every cell. Since there is no limit to the possible number of carbon compounds containing sulfur a complete survey of these substances cannot be presented. A description of

some of the more important and better understood of the sulfur-containing compounds is briefly given in the following:

Methionine, gama-methylthiol-alpha-amino-butyric acid ($C_5H_{11}O_2NS$) containing 21.9 per cent sulfur, is an amino acid derived principally from proteins by acid hydrolysis. It is an essential constituent of the diet in as much as it seems to be indispensable in the promotion of growth.[2] *Cysteine,* alpha-amino-beta-thio-lactic acid ($C_3H_7O_2NS$), containing 26.4 per cent sulfur, is an amino acid obtained in nature by reducing a hydrolytic product of proteins. It can be synthesized in the laboratory from certain elements and simple compounds. Cysteine readily undergoes dimolecular oxidation, producing *cystine* ($C_6H_{12}O_4N_2S_2$) which contains 26.6 per cent sulfur. This latter compound may also be prepared by acid hydrolysis of proteins. It is generally believed that there is an equilibrium between cysteine and cystine in the living organism, but so far this has been primarily of theoretical importance. "For many years cystine was thought to be an essential amino acid. Later work has made clear that the other sulfur containing amino acid of proteins, methionine, is essential for growth but that cystine is not. However, if the amount of methionine in the diet was not sufficient to permit normal growth, it was observed that the addition of small amounts of cystine would accelerate growth. It has been suggested that methionine forms some substance which also can be formed from cystine and that this derivative is necessary in order that growth can occur. To a limited extent, therefore, cystine can replace a portion of the methionine in the diet."[3] *Glutathione,* a crystalline tripeptide ($C_{10}H_{17}O_6N_3S$) containing 10.4 per cent sulfur, is synthesized from glycine ($C_2H_5NO_2$), cysteine ($C_3H_7O_2NS$) and glutamic acid ($C_5H_9NO_4$) and it can also be prepared by incomplete acid hydrolysis of proteins. Glutathione being water soluble is found uncombined in active tissues and fluids of the body, the young animals having the highest concentration of it. Considerable evidence is available demonstrating the role glutathione plays in oxidation-reduction processes. We believe that this latter property is contributed by the cysteine (sulfur) part of its molecule.

Insulin, a hormone secreted by the pancreas, is essential for the metabolism of carbohydrates. "All the available evidence points to insulin's being a protein consisting mainly of leucine, glutamic acid, tyrosine, histidine, and cystine. The empirical formula derived by Abel for his crystalline insulin is $C_{45}H_{75}O_{17}N_{11}S$."[5] The pure crystalline compound contains over 3 per cent sulfur, all of which is believed to be combined in a cystine unit in the molecule. White and Stern report that insulin when reduced with certain substances remains physiologically active and the sulfur in its molecule is present as mercaptan groups; while reoxidation of the last mentioned form destroys the sulfhydryl groups, leaving a product physiologically inactive.

Vitamin B_1, ($C_{12}H_8ON_4S$) (12.5 per cent sulfur) a crystalline compound the chloride of which melts at 246 to 250 degrees C., is now produced synthetically, or it may be extracted from brewers yeast, whole grain vegetables, milk, eggs, liver, and the pancreas of animals. Fukushima observed that vitamin B_1 increases tissue oxidation in mammals. Yarusova has found that a small amount of it is stored in the animal organism when fed in excess. On account of the rapidity with which the organism may be depleted of this substance, vitamin B_1 deficiency no doubt plays an important part in aggravating alcohol addiction and other conditions common to persons whose diet consists mainly of carbohydrates.

Ergothioneine, trimethylbetaine of thiohistidine ($C_9H_{14}N_3O_2S$) containing 14.0 per cent sulfur, was first obtained from ergot, but it is also found in some of the cells of the body, e.g. red blood cells.

Taurocholic acid ($C_{26}H_{45}O_7NS$) contains 5.2 per cent sulfur, is found principally in the bile of animals, and may be synthesized from taurine and cholic acid. *Taurine,* a colorless water soluble crystalline acid containing 25.5 per cent sulfur, aminoethylsulfonic acid ($C_2H_6NO_3S$), is found in tissues of the lungs and muscles, as well as in combination with taurocholic acid. It may be prepared by direct synthesis, hydrolysis of taurocholic acid, or extracted from animal tissues.

PELLAGRA AND AVITAMINOSIS

"Certain conditions exist where the diets are low in organic sulphur and the constant drain upon the -SH of the body cannot be replaced. For instance, the diets in such diseases as pellagra, pellagroid, acrodynia, black tongue, xeroderma, lathyrism, and perhaps also ergotism, sprue and others, have been known to contain cyanic and other toxic substances but their organic content of sulphur and minerals are low. The consequence is the cells suffer from a

relative lack of oxygen (histotoxic anoxemia), and certain forms of degeneration then arise within the body. To this lack of body sulphur and minerals may be due many other obscure lesions which are at present attributed to this or that vitamin deficiency. This deficiency may also possibly play a role in such diseases as disseminated sclerosis, pernicious anemia, malignancy, tuberculosis, chronic muscular and joint affections, and certain skin disorders, all of which are benefited by various forms of sulphur therapy. The low sulphur content found in these and other disorders may be the result of increased demands made by the body for additional sulphur for detoxifying purposes."[1] Sabry discovered that sodium thiosulfate would cure cases of human pellagra. He believes that the available sulfur in this compound ties itself with and detoxifies a poisonous substance which causes the disease. Clark postulated that pellagra and allied diseases are due to slow prussic acid poisoning. He substantiated this belief by pointing out that the diet of all patients suffering from these diseases contain foods such as: cassura, maize, sugar cane, corn, peas, and beans all of which yield prussic acid during metabolism. Sulfur combines with prussic acid to produce thiocyanate, a large excess of which is found in the urine and saliva of pellagrins. Smith calls attention to five cases of uncomplicated pellagra in which chemical analyses revealed a decrease in the sulfatides associated with degeneration of the tissues. There was also a loss of neutral sulfur in the cerebrum and spinal cord. Furthermore, diets which have been found useful for the prevention of pellagra are effective in proportion to their sulfur content. An adequate supply of sulfur appears to exert a protective influence against the pathologic effects of solar radiation. Evidence suggests that an inadequate supply of sulfur as cystine is an important cause of pellagra and the abnormal metabolism of sulfur an important feature of it. It has been further demonstrated that the addition of sulfur to the other measures used in combating pellagra brings about a more marked and complete response.

Avitaminosis: Wright has described a disease characterized by the early symptoms of: epithelial lesions on the tongue, lips, angles of the mouth, scrotum or vulva, and conjunctiva and day-blindness, suggestive of pellagroid maladies. This entity has been found to be due to A and B avitaminosis and sulfur deficiency. Persons receiving a diet containing an excess of starches (low in sulfur) develop this syndrome; while it improved by increasing either the vitamin A or vitamin B intake, recovery became prompt and significant with the addition of sulfur therapy. Conclusions were reached that vitamin A and vitamin B can remain inactive in the body if the sulfur content falls below a certain level.

DIABETES MELLITUS

Attention has been called to the existence of a relationship between the liver, the insular system of the pancreas and the suprarenals, and also to a distinct effect of the thyroid and of the central nervous system on the activity of the liver cells. This suggests that a disturbance in the function of one endocrine gland or even the function of the liver, e.g. diabetic conditions, would result in an imbalance of the endocrine system. The favorable results obtained by certain investigators in treating diabetics with sulfur calls attention to a possible relationship between sugar metabolism and sulfur metabolism. This hypothesis has been confirmed by animal experimentations and observations on diabetic patients. The sulfur treatment lowered the blood sugar; increased the tolerance for carbohydrates; and affected the decomposition of acetone bodies. Sulfur therapy with an unrestricted diet has been found to usually correct hyperglycemia associated with benign diabetes. The clinical results obtained by treating diabetes with sulfur have been reported to be similar to those obtained from the use of insulin. The hypoglycemic effect of insulin is presumably parallel to its sulfur content; while insulin preparations from which sulfur has been removed are no longer effective. These facts lead us to believe that the organism utilizes sulfur for the synthesis of either insulin or insulinoid compounds.

A study made by Heinmann revealed that sulfur decreases the basal metabolism. Rabbits and rats treated with sulfur showed an increase in the glycogen content of the liver and a simultaneous decrease of blood sugar. The serum of the sulfur-treated animals produced hypoglycemia when administered to other animals. The effect of sulfur is slow and gradual, while the effect of insulin occurs rapidly and increases with the dosage. Echtman *et al* have observed that sulfur therapy is most effective when it is administered in small doses for an extended period of time. Diabetics with slight disturbances in the liver function have been very favorably

influenced by sulfur therapy, but this treatment becomes less effective as cirrhosis of the liver increases. Although the physiological significance of the chemically bound sulfur of the insulin molecule is not fully clear, there is no doubt that sulfur exerts a very favorable effect on the metabolic processes of the liver, and that sulfur therapy has a very favorable influence on diabetes mellitus.

ARTHRITIS

"In spite of the enormous numbers of sufferers from arthritis, and its economic importance, there are few conditions which present so many medical problems and concerning which there is such diversity of opinion, especially with reference to therapeutic measures."[2a] "The Council concurred in the referee's conclusions and voted not to accept any form of sulfur for the treatment of arthritis at present. The introductory statement affirms that before acceptance satisfactory evidence must be produced that sufficient controls have been employed and that follow-up periods of sufficient length to rule out spontaneous remissions have been observed. Further, the types of cases in which the preparation may be used with a fair expectation of benefit must be determined, and the chief contraindications, optimal dosage and best form and route for use must be defined. These criteria as outlined for sulfur therapy in arthritis could well be employed in assessing the value of any other of the many drugs employed in this chronic and clinically variable disease."[2b]

Woldenberg suggests that arthritis is the result of a metabolic disturbance superimposed by an infection. On this basis it would seem that the essential things to do are to remove the foci of infection and destroy or neutralize the toxic metabolites. An increase in the formation of histamine is usually observed in patients with arthritis. Forbes[4] and Neale found abnormally large quantities of indole in the urine of a majority of the cases they studied; and we know that sulfur combines with histamine as well as indole to produce non-toxic compounds. According to Sullivan[8] and Hess the low cystine content of finger nails in a majority of arthritic cases points toward an intoxication factor that utilizes the sulfur complex and diverts it. This reduction of the concentration of sulfur-containing compounds in tissues probably causes atrophy. It is also felt that as cystine is mobilized from deposits in the body for protection against toxins there results a deficiency in the loosely bound sulfur that also seems to influence the production of hormones and enzymes. "If there be a deficiency, or improper assimilation, faulty metabolism, etc., the available -SH would be reduced resulting in a diminished cellular activity with disturbances in the oxidation-reduction and detoxifying phenomena. The role played by organic sulfur and its distribution in the body is a large one."[1]

Professor Cawadias at Athens University pointed out that the cells in an arthritic patient have lost the abilty to retain sulfur in the same manner as the cells of tuberculars have lost the ability to retain calcium or the cells of the diabetics to utilize carbohydrates. The clinician often finds in patients with arthritis accompanying pathological conditions upon which sulfur frequently exerts beneficial effects. Some of these conditions are: arteriosclerosis, hypertension, chronic nephritis, myocardial degeneration, cardiovascular diseases, obesity, diabetes, chronic gastro-intestinal disturbances, etc. During the customary treatment of the associated symptoms arthritis may be aggravated, thus making the patient the victim rather than the beneficiary of drug treatment.

Woldenberg[10] states that "regardless of the etiological factor operating in any individual arthritic case, it is certain that the metabolism of the patient has been either overloaded or impaired. This metabolic deficiency may be due to a disturbance or interference in the capillary circulation." Recent studies made by Loeper *et al* show that sulfur has a definite relation to the cartilage in the joints and is important in maintaining the metabolic balance of the cartilage. Tissues of arthritics show a definite hunger for sulfur. They also learned that in chronic arthritis there is not only a deficiency of sulfur in the joint cartilages, but also a disturbance of sulfur metabolism in general. This disturbance was shown by a decrease in the glutathione content of the blood, an increase in total sulfur content of the serum and an increase in the amount of sulfur absorbed by rheumatic persons as compared with normal values. McDonagh points out that colloidal sulfur is of value in treating every case where fibrosis is occurring or has occurred, provided the fibrous tissues have not become completely organized.

In sulfur therapy of arthritis, according to Senturia,[7] "there are no contra-indications so far as could be determined. Patients with chronic myocarditis, cardiac decompensation, chronic cardiac valvular disease, hypertension, arteriorsclerosis, hemi-

plegia, diabetes mellitus, epilepsy, bronchial asthma, chronic bronchitis, pulmonary emphysema, cirrhosis of the liver, and various endocrinopathies were not adversely influenced by the treatment. No signs or symptoms suggesting damage to any of the systems developed. Routine urine examinations failed to reveal any change in kidney function." The benefits derived from sulfur therapy have been attributed by some to the replacement of sulfur lost by the arthritic patient. Certain authors believe that sulfur treatment should begin as early as possible to avoid unnecessary suffering. It has been pointed out that sulfur is definitely indicated in the treatment of chronic rheumatism, because it has a profound and complex effect on the nutrition of joints and also on the general metabolism.

DERMATOLOGY

With regard to the local usage of sulfur, it is spoken of as a reducing agent, extracting oxygen from the tissues. According to Sutton and Sutton the therapeutic actions of sulfur are two fold: first, by its effect on the endothelial lining of the capillaries the caliber of the vessels is reduced, and the supply of blood to the part diminished; second, it hastens keratinization of the skin. Miller, in quoting Zunz, states that sulfur is changed in form on the skin, it reaches the cystine containing cells and is converted into hydrogen sulfide. In the presence of hydrogen sulfide soluble polysulfides are formed that liberate sulfur in the deep layers of the epidermis. Sulfur also reacts with the thionic groups normally contained in the deep epidermis, forming disulfides and hydrogen sulfide. These sulfides eventually become penta-thionic acid.

The actions of sulfur when applied locally are many. It is antiseptic, antiparasitic, and fungicidal. In dilute strength it is keratoplastic and astringent; in stronger preparations it is irritating and causes exfoliation of the epidermis. The therapeutic properties of sulfur largely depend on its conversion into thio-compounds, such as the formation of sulfurous and sulfuric acids on raw surfaces. It has been observed that sulfur ointment increases the sulfur content of the serum of normal persons by 87 per cent (87%) twelve hours after the application of 10 grams of the U.S.P. preparation. Colloidal sulfur largely overcomes the absorption handicap that has persistently confronted the ordinary form, because the physiological activity of sulfur increases with the fineness of subdivision. It enters into chemical combination with rapidity and ease, giving superior results wherever sulfur is indicated. Sulfur in colloidal solution produces hydrogen sulfide more rapidly than other forms. Colloidal sulfur has given gratifying results in the treatment of acne vulgaris, seborrhea, seborrheic dermatitis, sweat eruptions generally, rosacea, ringworm infections, bromidrosis, eczema marginatum, furunculosis, neurodermatitis, pediculosis, pruritus vulvae, psoriasis and scabies. "Of the many local remedies for seborrhea of the scalp, not one is more useful than sulfur."[6]

SUMMARY

A review of the literature dealing with the therapeutic actions and uses of sulfur and sulfur compounds has been made. References to a few of the important papers have been cited. Special treatment has been given to the subjects: colloidal chemistry; prevalence and distribution of sulfur in the body; daily requirements of sulfur by the body; metabolism of sulfur in the body; sulfur in detoxication, arthritis, pellagra, avitaminosis, diabetes mellitus and dermatology.

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16 North Twenty-Second Street.

Richmond—

October 3, 4 and 5

As President of the Richmond Academy of Medicine, I wish on behalf of our members to let you know how delighted we are that the Medical Society of Virginia is going to meet with us on October 3-5.

I can assure you that everything is being done to make the meeting one of the most attractive which we have ever had, but unfortunately upon you, chiefly, does the true success of the meeting depend. As hosts, we can prepare down to the last detail, but without your cooperation we can accomplish little.

In the July issue of the VIRGINIA MEDICAL MONTHLY, we have tried to tell you of some of the attractions which Richmond has to offer those who are coming, but, great as these are, this is not going to be what will attract you to Richmond in October.

The splendid program, with its attractive guest speakers, is going to be of the highest type, but to some even this is not going to make an appeal sufficiently strong as to cause them to leave home.

The large number of attractive exhibits, the reunion dinners, and various types of entertainment will naturally appeal to many others, but even these will not appeal to all.

Should there not be a greater appeal to the 1,800 members of our Society than the program, the exhibits, the meeting of friends, and general entertainment? Today, I feel there is. There never was a time in the history of our Society when there was a greater need for cooperation than there is today. Our profession is being assailed from all sides and there is not a doctor in Virginia who is not being affected by it. There are many problems which will have to be solved and, if they are to be solved correctly in Virginia, we are the ones who must do it. The future of medicine in Virginia will depend largely upon the way we can solve our problems today.

You can help your State Society in many ways if you will only come to Richmond in October.

KARL S. BLACKWELL, *President,*
Richmond Academy of Medicine.

Public Health Statistics

I. C. RIGGIN, M. D.
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for June, 1939, compared with the same month in 1938 follows:

	1939	*1938*
Typhoid and paratyphoid fever	28	49
Diphtheria	30	30
Scarlet fever	41	71
Measles	1,763	1,237
Meningitis	4	8
Poliomyelitis	2	5
Rocky Mountain spotted fever	12	10
Typhus fever	2	1
Undulant fever	2	5
Tularemia	3	3

SYPHILIS AND THE CONTACT CASE

One of the most important activities of the venereal disease control program of the Virginia State Department of Health is the epidemiological investigation of contacts of cases of syphilis in the early stages and the follow-up of patients delinquent from treatment. In all of the counties and cities of the State having full-time health service this valuable work is being performed.

In the epidemiological investigation of contacts, a full history is obtained regarding contact prior to and subsequent to infection from the original case. After this, a form letter stating that the person named has been recently exposed to a serious communicable disease and advising that he present himself either to his family physician or to the clinic for examination is sent to the contact. If the individual does not present himself within the specified time, a second letter is sent further impressing the fact that he has been thus exposed and urging more emphatically that he consult his physician. In the event that the contact comes to the clinic, he is examined and, if found to be infected, referred by the clinic to his physician for treatment.

However, if the letters are unheeded, the person exposed is visited and his exposure explained, without divulgence of the identity of the informant. The majority of these individuals present themselves for examination as a result of the letters. Nearly all come in after a visit and fuller explanation.

That this work is of importance cannot be overemphasized. It has been found that, for each one hundred original cases, between forty and fifty new cases, previously unrecognized as syphilis, receive treatment as a result of contact work. Furthermore, approximately one case is located for each original case—if we consider cases located that have been previously treated or diagnosed. It is also known that contact investigation of infectious cases results in bringing the greatest number of persons to treatment, and, in consequence, considering the money and time expended, is most effective as a control measure.

There are many physicians in the State who are investigating the contacts of the infectious cases in their practice and who are checking contacts other than the immediate familial ones in an attempt to bring these exposed individuals for examination. Many are reporting contacts not in their practices to the local health departments for investigation. These are reported to the health departments on the back of the case report card. As is customary, the case is reported by number, and the contacts prior to and subsequent to infection are listed in the space provided by name, address, color, sex, and age. In this system, the identity of the original case is not divulged, and a valuable service is rendered to those persons who have been exposed and, in turn, to the community at large, in that further spread is prevented when an infected individual is brought to treatment.

Another activity of importance is the follow-up work being done on the patient delinquent from treatment. This is of particular importance from a public health viewpoint when the case is delinquent in the early stages of syphilis. When the patient is delinquent in the late stages, it is of economic importance to the community to have him followed up. If delinquents are reported to the health department on the "Discontinued Treatment" notice, an attempt is made to locate them and to see that they return to treatment. This is accomplished by persuasion, if possible; where this fails, the Statute Laws of the State (Chapter 364, paragraph 5-a) provides for a drastic quarantine and imposes a penalty for violation of quarantine upon all infectious or potentially infectious cases. In this procedure, a notice is served to the delinquent individual—if necessary a visit is made to persuade him to return. If this fails, a quarantine notice is served and strict quarantine is enforced. This notice defines the area and limits of

the quarantine, stating that it will be enforced until satisfactory evidence is produced that the person is receiving treatment from a duly licensed physician. It is rare that delinquents do not return to treatment upon receipt of quarantine notification, and prosecutions for violation of quarantine are seldom necessary. This service returns the patient to treatment and prevents community spread by careless and negligent individuals.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Lederle Laboratories, Inc.
Immune Globulin (Human)—Lederle.
Tablets Ascorbic Acid—Lederle, 0.025 Gm.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Sulfapyridine—Lederle.—A brand of sulfapyridine—N.N.R. (*The Journal,* May 6, 1939, p. 1831). It is supplied in the form of tablets, 0.5 Gm. (7.7 grains). Lederle Laboratories, Inc., Pearl River, N. Y.

Tablets Sulfanilamide, 5 grains—The Upjohn Company.—Each tablet contains sulfanilamide (New and Nonofficial Remedies, 1939, p. 463) 5 grains. The Upjohn Company, Kalamazoo, Mich.

Tablets Sulfanilamide, 7½ grains—The Upjohn Company.—Each tablet contains sulfanilamide (New and Nonofficial Remedies, 1939, p. 463) 7½ grains. The Upjohn Company, Kalamazoo, Mich. (*J. A. M. A.,* June 24, 1939, p. 2603).

Accepted Devices for Physical Therapy

The following devices have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

Aloe Short-Wave Unit, Type CSC.—This unit is recommended for medical and minor surgical procedures. It is similar to the Council accepted Aloe Short-Wave Diatherm, Type CSW (*The Journal,* September 4, 1937, p. 793) except for the addition of an inductance cable outlet, thus providing for coil, cuff and pad technics. The unit was tried out clinically and was found to give satisfaction when used for cuff and coil technic. A. S. Aloe Company, St. Louis, Mo. (*J. A. M. A.,* June 3, 1939, p. 2275).

Propaganda for Reform

A New Dietary Factor.—About three years ago Day, Langston and others of the University of Arkansas, placed monkeys on a presumably adequate diet containing all known vitamins. This diet consisted of a mixture of casein, polished rice, ground whole wheat, cod-liver oil, ascorbic acid, salt mixture and sodium chloride. All monkeys fed this diet developed anemia, leukopenia, gingivitis, diarrhea, anorexia and loss of weight. Death invariably occurred in from one to three months. These investigators then tested the effects of the addition of nicotinic acid to their routine deficiency diet. The nicotinic acid had no demonstrable effect on the pellagra-like oral lesions in these animals. In later tests the Arkansas physiologists found that 1 mg. of riboflavin added to the daily diet will not prevent the development of pellagra in monkeys, nor will a combination of nicotinic acid, riboflavin and thiamin appreciably affect the course of this deficiency disease. If the daily deficiency diet is supplemented by 10 Gm. of dried brewers' yeast, however, or by 2 Gm. of liver extract, normal body growth and a normal blood picture are maintained over long periods. They conclude from these results that monkeys require some factor contained in yeast or in liver extract in addition to the factors commonly recognized as a part of the Vitamin B complex. For this unknown nutritional factor they tentatively suggest the name "Vitamin M." Attempts to isolate and identify the new antipellagra "vitamin" are now in progress in their laboratory. (*J. A. M. A.,* April 1, 1939, p. 1258.)

A Study of the Promiscuous Use of the Barbiturates: Their Use in Suicides.—The Board of Trustees of the American Medical Association requested the Council on Pharmacy and Chemistry to make a study of the promiscuous use of barbiturates, particularly with reference to the dangerous use of these products by the public. The Council invited Dr. W. E. Hambourger of Western Reserve University to draw up a report. The Council considered Dr. Hambourger's report and authorized its publication. The following is a summary of Dr. Hambourger's study: 1. More than 1,200,000,000 grains of barbituric acid derivatives was sold in the United States in 1936. 2. The total number of suicidal deaths by the barbiturates in the United States in 1936 was probably close to 300. The probable number in 1937 may have approached or even exceeded 400. 3. For the five years 1932-1936 the national incidence of suicides by barbiturates represents 4.2 per cent of all poisons (except gases) and 0.66 per cent of all methods used for suicide. 4. In seven large cities and their associated counties, for the decade 1928-1937, barbiturates represent 8.1 per cent of suicides by all solid and liquid poisons and 1.25 per cent of all methods used for successfully committing suicide. 5. The incidence of suicides by barbiturates is nearly twice as high in large cities as in the country as a whole, ranging from 2 per cent in St. Louis up to 16.7 per cent in Boston. 6. The number of suicides by barbiturates has shown a definite upward trend during the past decade, especially marked since 1933, although the frequency of suicides by liquid and solid

poisons and of total suicides have both declined since 1933. (*J. A. M. A.*, April 8, 1939, p. 1340.)

Sulfapyridine.—After careful study, the U. S. Food and Drug Administration has granted the right to manufacturers to distribute sulfapyridine in interstate commerce under the stipulations of the act dealing with new drugs. During the period when sulafpyridine was under consideration, *The Journal* and the Council on Pharmacy and Chemistry made every effort to obtain essential information concerning its usefulness in the treatment of various types of pneumonia and, in so doing, has consulted approximately 100 physicians who have replied to inquiry giving the details of their experiences with the drug. The replies received indicate that it is essential wherever possible to type each case of pneumonia before this drug is administered, because it has been reported by a number of investigators that there are cases of pneumonia which do not respond to this drug and have subsequently responded to the specific antiserums. The Council reports that all of these observations lead to the suggestion that, while there is much to be learned about the exact place of sulfapyridine in the treatment of pneumonia, it appears to be a very useful measure in many cases when properly employed. The facts also suggest considerable caution in its use until such time as more evidence is available of its usefulness and safety. It remains to be determined just how effective it is and just how well it will compare with antiserum in various epidemics or over a course of years in various types of pneumococcic infections. The Council on Pharmacy and Chemistry has voted to accept sulfapyridine for inclusion in New and Nonofficial Remedies (*The Journal,* May 6, 1939, p. 1831) and to proceed with the consideration of the submitted brands of the drug. (*J. A. M. A.,* May 6, 1939, p. 1830.)

Book Announcements

Priests of Lucina. The Story of Obstetrics. By PALMER FINDLEY, M.D., F.A.C.S. Boston. Little, Brown and Company. 1939. Octavo of xiv-421 pages. Cloth. Price, $5.00.

There has long been a need for such a delightful, gossipy history of obstetrics. In fact there is no history of obstetrics in English. Herbert Spencer has given us "The History of British Midwifery", Herbert Thoms "Chapters in American Obstetrics" and Edwin Jameson a "Booklet" on the history of gynecology and obstetrics. With the increasing interest of lay men and lay women in obstetrics, Palmer Findley's book should find a host of readers, both professional and otherwise. He gives us interesting sketches of the men who have played important roles in the development of the art of midwifery from Hippocrates to Whitridge Williams. The reader learns how many of the misconceptions we meet today arose from the beliefs of the teachers of the past: that a seven months' fetus is more likely to survive than an eight months' one; that stoppage of the lochia causes puerperal fever; or that you can diagnose the sex from the way the mother carries the fetus, etc.

I am glad that Albertus Magnus was included among the Priests of Lucina, but was disappointed that his description of the repair of a ruptured perineum was not mentioned. It is also disappointing that our author did not treat more critically the gynecological knowledge of the ancient Greeks. Their knowledge of anatomy was vague and their nomenclature was confusing. Goodell tells us that they used the same word for uterus and vagina, so that when they speak of laceration of the cervix, it is not clear just what the lesion was. Dr. Findley who is both a scholar and a master gynecologist, missed a golden opportunity in not clearing up this vexing subject.

There are a few errors that the critic feels obliged to point out. On page 209 William Smellie and William Hunter are called two *Lancashire Scots* instead of Lanarkshire. The printer evidently was more familiar with English geography than with Scottish. One would gather from Chapter XVII that Dr. James Lloyd of Boston and Dr. William Shippen, Jr., of Philadelphia were the only male midwives in America before the Revolution. No mention is made of Dr. John Moultrie of Charleston nor of William Watkins, surgeon and man-midwife, who was living in Port Royal, South Carolina, in 1737. Credit is rightfully given to Max Sanger for modernizing the cesarean operation but no mention is made of the influence on Sanger of the early American operators who first sutured the uterus. The author states that the first successful cesarean section in the United States was performed by a young girl fourteen years of age upon herself in 1822. As a Virginian I resent the ignoring of Dr. Jesse Bennett's operation in the Valley of Virginia in 1794.

The chapter on puerperal fever is a most excellent one. I wish, however, it had been extended to include the newer work on droplet infection and the benefit of face masks in prophylaxis. In fact the whole book is well written. The only poor section is that on James Platt White who introduced clinical teaching in obstetrics. This innovation produced a storm of protest. Just what connection the suit for

libel of "The people versus Horatio N. Loomis" had with James Platt White is not clear from the text. The attorney for the defense argued that "it was not only a startling and bestial innovation, but without a particle of utility." A verdict however was returned in favor of the defendant. In the next paragraph we learn that Dr. White was ultimately vindicated.

The book should be read by all who are interested in obstetrics.

M.P.R.

Medical State Board Examinations. Topical Summaries and Answers. An Organized Review of Actual Questions Given in Medical Licensing Examinations Throughout the United States. By HAROLD RYPINS, A.B., M.D., F.A.C.P., Secretary, New York State Board of Medical Examiners; Member, National Board of Medical Examiners; Former President Federation of State Boards of Medical Examiners of the United States; etc. Fourth Edition, Revised. Philadelphia. J. B. Lippincott Company. 1939. Octavo of 448 pages. Cloth. Price, $4.50.

The author of this book is rich in experience, particularly as it relates to state board medical examinations, and so this text is of more than ordinary interest. The book is very evidently not a pocket encyclopedia or a quiz compound, but represents a systematized review of medicine based on the premise that the reader has a much greater breadth of knowledge than the contents of the book. The preface deserves special praise. Here the author discusses in fine fashion the relationship between medical schools and state boards. One of the most interesting statements to the reviewer was the following:

"It is evident that the examining boards are slowly realizing that medical schools are in better position than themselves to test the student's academic or encyclopedic knowledge of such subjects an anatomy, chemistry and bacteriology; that such testing may be safely left in the hands of medical faculties; and that examining boards should limit themselves to inquiring into the ability of the medical graduate to apply such knowledge clinically."

In chapter I, headed "Personal Foreword to the Candidate," good, sound advice is given to the young graduate who is applying for licensure. It would be well if this chapter were read to all graduating classes in medicine who are to face state board examinations.

After this personal foreword there follow discussions in a very attractive style of the more salient and important points of interest in chapters devoted to anatomy, physiology, chemistry, bacteriology, pathology, hygiene and preventive medicine, obstetrics and gynecology, medicine, and surgery. The statements are as a rule concise and in keeping with modern facts and opinions. At the end of each chapter there is a list of pertinent questions bearing on the subject of that particular chapter. It is a book that but for one major fault could be very useful and interesting to those who would like to refresh their memories and bring their medical thoughts up to date. The author states that he has purposely omitted technical questions of procedures and hence has omitted prescription writing and materia medica.

Now the fault! It is inconceivable that a book of this type could be presented without a section on pharmacology; but this is the case. Can it be that the author feels that this subject warrants no such recognition as is given its handmaids? The reviewer had hoped that he had sometime ago encountered the last flutterings of the anti-drug propaganda that began some fifty years ago. Probably no subject in the medical curriculum is growing so rapidly as pharmacology, given even greater impetus within recent years by the renewed interest in chemotherapy and by the introduction of the various hormone preparations. It is unfortunate that at a time when students and practitioners should know more of the fundamentals of drug action, and should be weaned away from further tutelage by detail men, that an authority such as Dr. Rypins should so completely ignore it. Fortunately the cudgels are being taken up for pharmacology by many of the more enlightened in medical education; as an instance of this one has but to read the *Rockefeller Foundation Review* for 1938. Incidentally the reviewer is a teacher of pharmacology.

H. B. HAAG, M.D.

Virginia Medical Monthly

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Editorial

A Professor Comes to the University.

Eugene M. Landis, M.A., M.S., Ph.D., M.D., F.A.C.P., formerly Assistant Professor of Medicine and Research Associate in Pharmacology at the University of Pennsylvania, by virtue of a recent action of the Board of Visitors of the University of Virginia succeeds the late Dr. J. C. Flippin, and becomes Professor of Internal Medicine, Head of the Department of Medicine on a full time basis, and Chief Physician to the Hospital and Clinic of the University of Virginia.

A review of Professor Landis's qualifications is impressive. A holder of four degrees from the University of Pennsylvania and of an honorary degree from Yale University, he comes to Virginia with an array of productive research and published papers that would do credit to a much older man. His interest has hitherto been chiefly in the peripheral vascular system. Beginning in the Department of Physiology at the University of Pennsylvania with a study on capillary pressure and permeability, his investigations were continued in London under Sir Thomas Lewis with a study of capillary physiology and peripheral vascular disease, and a final work on capillary physiology and edema was completed with August Krough in Copenhagen.

The permanent and fundamental nature of his contributions to experimental and clinical medicine is pretty generally recognized. The fact that he delivered the Hatfield Lecture in Philadelphia and the Harvey Lecture in New York the same year, and later the Noble Wiley Jones Lectures in Portland, testifies to the recognition he has already received.

Professor Landis has been called to a chair previously occupied by a long line of distinguished physicians, extending from Dunglison through Magill, Griffith, Howard, Harrison, Dabney, Buckmaster and Davis to the late Dean Flippin. It is worth noting that his name has long been identified with Philadelphia medicine and that the University of Virginia is following an old tradition in turning to the Quaker City to fill its chair of medicine. The first four occupants of this position were connected in one way or another with medical teaching in that extraordinary center of early medical culture. Robley Dunglison left the University of Virginia in 1833 to become Professor of Medicine at Jefferson Medical School. Alfred T. Magill was a graduate of the University of Pennsylvania. Robert E. Griffith, before coming to Virginia, taught medicine in Philadelphia after graduating in medicine there, and Henry Howard, who succeeded him in Charlottesville, also had his diploma from the University of Pennsylvania.

We in Virginia welcome to the State a man who has already achieved so much and whose reputation gives promise of further productive investigation and teaching.

Sulfanilamide et al Under One Cover.

In all the history of medical science there has probably never been offered to the profession a drug equal to sulfanilamide, sulfapyridine and their allied compounds. Quinine is practically limited to malaria and arsphenamine to syphilis, but the group of sulphur compounds which we are now discussing is effective over a range of such widely differing infectious diseases that no one has as yet explored the full extent of their usefulness.

It has now been six years since Dr. Foerster reported upon "Sepsis im Anschluss an ausgedehnte Periporitis. Heilung durch Streptozon." During this time an enormous literature on the subject of sulfanilamide has accumulated, and physicians all over the world have prescribed tons of the new drug. While clinical application has been widespread, much remains to be discovered concerning the fundamental mechanism of the treatment as it acts upon both the host and the infecting organism. That the drug is toxic, that knowledge concerning its pharmacology is incomplete, that laboratory facilities for following its concentration in the blood have not been generally available, that evidence of its injury to the host is frequent, that the technique of administration demands keen clinical judgment,—all of these facts have been too lightly regarded by the general run of the medical profession. For these reasons a monograph such as the Macmillan Press has just issued under the title: *The Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and Allied Compounds,* is warmly welcomed. P. H. Long and E. H. Bliss are the authors.

In spite of being a little too long, a trifle repetitious, and in spots lacking in clarity, the book appears to present most of the facts in the case. Inside its covers the seven sulphur benzene derivatives which have had clinical trial in this country and in Europe are listed, and their structural formulas given. Here is the fascinating history of this epochmaking discovery and the story of its tardy acceptance,—tardy especially in this country. Here the chemotherapy of experimental bacterial infections is discussed and the pharmacology and experimental toxicity of these compounds are described in detail, along with their mode of action, their clinical application, and their toxic manifestations in patients.

Most physicians have already had a hand at prescribing one or another of this group of drugs, and most physicians will want to have a look at this book. It may not be necessary to own it because almost before it can be read attention may be focused upon other, as yet unexplored, phases of the new therapy.

A Record of Accomplishment.

As was predicted by Surgeon General Parran a year or more ago, we are beginning to feel a reaction to the drive and publicity against syphilis. There is less sound and fury than there was a while ago. And yet the work goes on in spite of the stillness in the air. It must go on until syphilis—not the French Disease, not the Neapolitan Disease, not *lues venenata,* but the American Disease—is brought under some sort of control.

Typical of the kind of antisyphilitic campaign which counts is the work being done by the Venereal Control Officer in the City of Richmond. Dr. Francis Upshur's annual report to the Director of Public Welfare shows what a planned approach can accomplish among industries, hospitals, syphilologists, obstetricians, recruiting officers of the Navy, Army and Marine Corps; how infractions of the law may be prevented; how reporting of cases can be increased; how a follow-up of infected persons who have come to Richmond to live may be effectively carried out. The report reflects the work of an energetic, tactful and enthusiastic officer who has succeeded in enlisting public support and is daily winning more of the confidence and cooperation of the people he serves.

Rankin and Graham's Book.

Cancer of the Colon and Rectum, by Rankin and Graham, a well printed and copiously illustrated monograph fresh from the press of Charles C. Thomas, Baltimore, offers the latest information in its specialized field, completely yet succinctly. The fact that 15 per cent of all cancers involve the lower intestinal tract and that almost half of these are in the rectum, justifies the book's 355 pages. Buttressed by an adequate preliminary discussion of anatomy, physiology, pathology, etiology, incidence, symptoms and diagnosis, the body of this manual is quite naturally devoted to a discussion of treatment. Operability, prognosis, choice of operation, pre- and post-operative treatment, and the actual operative procedures are fully discussed. A chapter on roentgenology is conservative in its point of view.

Are you dealing with carcinoma of the colon or rectum? This book will help you to decide. What

does surgery have to offer? What kind of surgeon should be called in? What are the patient's chances in the surgeon's hands? This manual answers these questions. Having read it, one is left with the impression that in dealing with cancer of the colon and rectum one is dealing with a disease whose treatment is primarily surgical, that half the cases of it are not seen until they have become inoperable, that many more would be hopeless but for the skill that those trained in this particular field have been able to master in recent years, and that this type of surgery should undoubtedly be reserved for those whose experience and results justify their claim to be specialists.

The junior author of the book, A. Stephens Graham, was born in Virginia, educated at the University, trained by the Mayos, and is now practicing surgery in Richmond. The chapter on roentgenology was contributed by Fred Hodges, also of Richmond.

The Health of Primitive Man.

Adolph H. Schultz in the *Bulletin of the History of Medicine* for June, 1939, has presented striking figures to show the incidence of disease and injury in wild apes. In the wild monkeys of Panama he claims that tertian-like malaria parasites associated with splenic enlargement were found in 29 per cent of the cases examined, microfilaria in 92 per cent, and a large trypanosome in 42 per cent. In the gibbons of Northern Siam filariid worms were found in a large majority of cases investigated. Chronic arthritis was discovered in fifteen of nineteen gorillas, and in two of forty-one orang-utans. Dental disease is said to be particularly prevalent among such animals, alveolar abscesses occurring in 62 per cent of the orang-utans, in 59 per cent of the gorillas and in 58 per cent of the chimpanzees. Carious teeth occurred in a high percentage of the older animals and pyorrhea was also common. A high incidence of bony fractures is said to obtain in wild apes. In an examination of 262 specimens of humerus, radius, fibia, tibia and clavicle, there were 9 per cent of fractures. In some of these the fractures were multiple and yet many of them healed with the bones in excellent position and with little shortening.

The author of this paper assumes that these same diseases and injuries affected the primates thousands of years ago and contends that it is not unreasonable to assume also that they plagued man "in the ages during and after which man separated from the common ancestral stock." As there seems to be little chance of discovering much evidence concerning the diversity and prevalence of the diseases and injuries of primitive man through the restricted study of fossil remains, Dr. Schultz thinks that the study of the antiquity of human disease is fostered by these investigations of pathological processes among the primates. He interprets the facts as seeming to prove that human disease has not become more frequent or more widespread with the advance of civilization and that disease among animals is not essentially a penalty of captivity.

Licensed Subsidiary Nurses Again.

Under the caption *Licensed Subsidiary Nurses* the following statement was made in these columns last month anent the graduation of such nurses from Sheltering Arms Hospital:

"It is understood that these are the first nurses of this type to be graduated from any institution in the State of Virginia. They, therefore, represent a new departure and one which we believe meets a long standing need."

It has since been brought to our attention that the credit for first producing this type of nurse in the State should go to the Westbrook Training School where since 1925, a total of 150 such nurses have been graduated. For a number of years these subsidiary nurses, or nursing attendants, have been licensed by the State of Virginia. Some of them have been absorbed by Westbrook Sanatorium, others have been employed in the King's Daughters Hospital in Staunton, Virginia, in the Sheltering Arms Hospital, the Home for Incurables, Pine Camp and the Crippled Childrens' Hospital in Richmond, as well as in private duty. The Westbrook Training School for Nursing Attendants was organized by Miss Louise Moss (now Mrs. James H. Royster), as a fifteen months' course, but it was expanded in 1936 to cover eighteen months, six months of which were given at the Sheltering Arms Hospital in Richmond.

What Westbrook has done, what the Sheltering Arms and several of the State hospitals are beginning to do, other hospitals in Virginia can also do. It is hoped that a larger number of nurses of this type of training will soon be available. The system of annual relicensing which now prevails in Virginia offers the guarantee of efficiency which is necessary for their more general employment.

Department of Clinical and Medical Education of the Medical Society of Virginia

Internal Medicine.

LYNCHBURG COURSE

As was announced in a previous issue of the MONTHLY, a postgraduate course in internal medicine was offered in Lynchburg during April, May, and June at the request of the Lynchburg Academy of Medicine. Instructors for the course came from the Medical College of Virginia and the University of Virginia Medical School. Meetings were held in the Memorial Hospital on Friday evenings. The interest, as measured by comments from doctors attending and the average attendance, was all that could be desired. This was due in considerable measure to the initiative taken by the local society and the preparations made by the local committee consisting of Dr. Ernest G. Scott, chairman, Dr. John Hundley and Dr. David P. Scott.

The following doctors attended one or more of the meetings:

Dr. W. C. Adkerson
Dr. H. P. Brown
Dr. H. C. Brownley
Dr. Roosevelt Cafarelli
Dr. R. D. Caldwell
Dr. H. E. Clark, Massies Mill, Va.
Dr. J. P. Clark
Dr. R. H. Cross, Concord, Va.
Dr. J. W. Davis, Jr.
Dr. J. W. Devine
Dr. John Devine, Jr.
Dr. Powell G. Dillard
Dr. Porter B. Echols
Dr. J. R. Gorman
Dr. E. S. Groseclose
Dr. C. W. Haden, Evington, Va.
Dr. Mary Harley, Sweet Briar, Va.
Dr. E. A. Harper
Dr. R. N. Hillman, Jr., Amherst, Va.
Dr. F. R. Hopkins
Dr. J. T. Hundley, Jr.
Dr. P. G. Hundley
Dr. J. Paul Kent, Altavista, Va.
Dr. S. G. Miller, Piney River, Va.
Dr. Carleton Moorman, Altavista, Va.
Dr. F. M. Morrison
Dr. James Morrison
Dr. E. F. Neal, Altavista, Va.
Dr. S. E. Oglesby
Dr. F. O. Plunkett
Dr. B. F. Randolph, Arrington, Va.
Dr. J. H. Rawlings
Dr. Carol M. Rice, Sweet Briar, Va.
Dr. B. A. Rice, Forest, Va.
Dr. H. L. Riley, Jr.
Dr. T. E. Rucker
Dr. W. V. Rucker, Bedford, Va.
Dr. E. M. Sandidge, Amherst, Va.
Dr. John R. Saunders
Dr. D. P. Scott
Dr. E. G. Scott
Dr. R. M. Taliaferro
Dr. A. W. Terrell
Dr. D. M. Thomasson
Dr. F. L. Thurman, Buena Vista, Va.
Dr. M. T. Vaden, Buena Vista, Va.
Dr. W. L. Williams, Brookneal, Va.
Dr. Edward F. Younger
Dr. William Weaver, Colony, Va.

BUCKINGHAM COUNTY

At the request of the newly-formed James River Medical Society a short course was held at Arvonia for the period of May 10 to June 7. The program for this course was printed in the June issue of the MONTHLY. The secretary of the society, Dr. E. J. Haden, reports that the course was very much worthwhile in the opinion of those attending. The following doctors enrolled for the course:

Dr. J. N. Dudley	Dr. T. E. Patteson
Dr. Perkins Glover	Dr. N. P. Snead
Dr. E. J. Haden	Dr. S. W. Selden
Dr. J. E. Haynesworth	Dr. A. C. Whitley
Dr. E. B. Nuckols	Dr. J. H. Yeatman

In addition to the above list a number of doctors attended one or more meetings.

At the request of the Buchanan-Dickenson Medical Society a speaker was provided for their meeting on June 21. Dr. Wellford C. Reed, the speaker, discussed "The Use of Quinidine and Digitalis in the Treatment of Heart Disease."

NEW COURSES

A few more courses may be offered during the summer and early fall upon request of local societies. Requests should be addressed to the Executive Secretary.

G. B. ZEHMER,
Executive Secretary.

Proceedings of Societies

The Dickenson-Buchanan County Medical Society

Met at Grundy on June 21, with Dr. W. A. Carr, Harman, presiding. There were nineteen members present. After dinner, Dr. J. P. Williams, Richlands, gave a film on "The Heart". Dr. Wellford Reed, Richmond, was the guest and spoke on "The Use of Digitalis and Quinidine in Heart Conditions".

Officers elected for the coming year are: President, Dr. P. Q. Daniel, Big Rock; vice-president, Dr. J. C. Trivett, Page; and secretary-treasurer, Dr. T. C. Sutherland, Haysi (re-elected). Delegates and alternates to the State Society meeting were also appointed.

The Patrick-Henry Medical Society

Held its quarterly meeting in Martinsville on July 14. In the absence of the president, Dr. J. A. Shackelford, the meeting was presided over by the secretary, Dr. R. H. Walker. The guest speaker was Dr. Hugh H. Trout, Roanoke, president-elect of the State Society, who spoke on the work of the American Medical Association and the Medical Society of Virginia and its relation to the practicing physician. Delegates and alternates to the State meeting in Richmond were elected.

The Manchester Medical Society

Was entertained by Dr. and Mrs. J. Blair Fitts at their home at Drewry's Bluff, Tuesday evening, June 13. Dr. James Tucker presented a paper on "Fractures about the Hip", and Dr. Manfred Call, III, guest speaker, discussed "Sulfapyridine in Pneumonia".

The following officers were elected for the ensuing year: President, Dr. J. Blair Fitts; vice-president, Dr. Richard A. Bowen; and secretary-treasurer, Dr. A. S. Hurt, Jr.

As the Manchester Medical Society was in existence for sometime before that section was annexed to Richmond as South Richmond, the doctors now living on the south of the river and former residents there have continued their society and have a live organization.

News Notes

Medical Society of Virginia — Richmond Meeting.

We are rapidly nearing time for the seventieth annual meeting of the Medical Society of Virginia in Richmond, October 3, 4 and 5, and we count on a large attendance. The local committee, of which Dr. Roshier W. Miller is general chairman, has been very active, and all details are well in hand. Mrs. James K. Hall, with her excellent committee, has planned attractive entertainment for the ladies, so doctors are urged to bring their wives and daughters.

There are several innovations this year. These include having the meeting of the House of Delegates on Tuesday evening in place of the general open meeting heretofore held at that time. The first of the scientific sessions is to be on Wednesday morning, at which time, also, there will be a guest speaker. Two other guest speakers will address other sessions. That evening will be open for alumni and other special meetings and dinners. The round tables have been changed from Wednesday to Thursday afternoon, and the subscription dinner that evening will close the meeting.

In addition to the usual technical exhibits, there will be the largest display of scientific exhibits in the history of the Society, a number of these being in the form of demonstrations at special hours. The number of papers to be presented has been reduced so as to make it possible for members to visit these.

You will feel repaid for attending this meeting. Come, see for yourself!

Married.

Dr. Arthur LaGrange Van Name, Jr., Center Cross, and Miss Grace Alma Cluverious, Little

Plymouth, in July. Dr. Van Name is a graduate of the Medical College of Virginia, in 1936.

Dr. John D. Hamner, Jr., class of '35, Medical College of Virginia, and Miss Evelyn Michelle Shepherd, both of Richmond, June 24. Dr. Hamner is now connected with the health work of Henrico County.

Dr. John Daniel Call, son of the late Dr. and Mrs. Manfred Call of Richmond, and Miss Alice Elizabeth La Plant, Denver, Colo., March 29. Dr. Call is a graduate of the Medical School of the University of Virginia in 1938 and recently completed an internship at the Virginia Mason Clinic in Seattle. He is now resident physician at the Riverton Sanitorium in Riverton, Wash.

Dr. Sidney Grey Page, Jr., and Miss Maysville Jane Owens, Cumberland, Md., June 24. Dr. Page graduated from the Medical College of Virginia in 1938 and is serving an internship at the Peter Bent Brigham Hospital in Boston.

Medical College of Virginia News.

Dr. William B. Porter, professor of medicine, attended the annual meeting of the West Virginia Medical Association at White Sulphur Springs, W. Va., July 10-12, speaking before the general session, the section on heart diseases, and the section on internal medicine. At the same time he spoke to the West Virginia alumni of the college at a luncheon meeting.

Dr. Clair R. Spealman, associate in physiology and pharmacology, has been granted a leave of absence for the session 1939-40 to do special work in physiology at the Laboratoire Maritime, Concormeau, France. Dr. Paul Larson has been appointed to substitute for Dr. Spealman. Dr. Larson received his A.B. degree from the University of California in 1930 and his Ph.D., from the same university in 1934. He has been instructor in physiology at the Georgetown Medical School.

Dr. William B. Porter, professor of medicine, Dr. Frank L. Apperly, professor of pathology, Dr. Harvey B. Haag, professor of pharmacology, and Dr. Rolland J. Main, associate professor of physiology, assisted in giving the National Board examinations at Duke University, Durham, N. C., last month.

Mr. Hans Jelinek has been employed by the college as medical illustrator. Mr. Jelinek has acted as medical illustrator for the Anatomical Institute of Vienna, the Psychiatric and Neurological Clinics and the Neurological Institute of the University of Vienna.

Dr. W. G. Crockett, professor of pharmacy, was awarded the honorary degree of Doctor of Science by Hampden-Sydney College last month.

The portrait of Dr. David Hunter Tucker, former dean and professor of the theory and practice of medicine, was unveiled with appropriate exercises on June 14. Dr. Beverley R. Tucker, a great nephew, presented the portrait. During the exercises Dr. Stuart McGuire told of the early associations of his father, Dr. Hunter McGuire, with Dr. Tucker.

Mr. David I. Farnsworth has joined the full-time faculty of the college effective July 1, 1939, as associate in anatomy. Mr. Farnsworth received his B.A. degree from Nebraska Wesleyan University in 1924, his master of science from St. Louis University in 1928, and his bachelor of medicine from Louisana State University last month.

The American Tobacco Company has continued its grant of $5,000.00 for the year 1939-40 for research in the department of pharmacology.

An Excellent Record.

Dr. R. D. Garcin of Richmond, Medical Director at the Masonic Home of Virginia, reports that they have just completed the annual physical check-up on the children at that home and for the sixth consecutive year the Wassermann test on every child was found to be negative. The children range in age from five to eighteen and he feels it is a unique record.

Dr. M. M. Pinckney

Has recently been appointed chairman of the first-aid committee of the Richmond Chapter, American Red Cross. He succeeds Dr. F. P. Fletcher, Jr., who will continue to serve on the committee as technical adviser.

Dr. James B. Pettis,

Clinical director of Western State Hospital, Staunton, has been appointed an associate professor of neurology and psychiatry at the University of Virginia. He will visit the University once a week for lecture and consultation purposes in the neuropsychiatric clinic.

The National Society for the Prevention of Blindness

Will hold its annual conference in New York, October 26-28, with headquarters at the Astor Hotel.

Arrangements will be made for extending the facilities of the Society's offices at Rockefeller Center to all visitors.

Dr. Edward V. Brush, Jr.,

Has located for general practice in Lexington. He is a graduate in medicine of the University of Virginia, class of '37, and served an internship at the Norfolk General Hospital and a residency at the Leigh Memorial Hospital.

Dr. Paul V. Davis

Has been employed by the board of directors of the Fauquier County Hospital, Warrenton, for coordinating and directing the medical work of the hospital, organizing and directing clinics and directing charity and emergency work for a period of six months. Dr. Davis is a graduate of Tufts College Medical School, Boston, in 1935.

Dr. Francis N. Taylor,

Petersburg, was recently elected a director of the Lions Club of that city, for a term of two years.

American Board of Obstetrics and Gynecology.

In the last issue of the MONTHLY, it was announced that the next Group B, Part I, examination of this Board would be held on December 2, 1939. This date has been changed to January 6, 1940, but the applications for admission must be on file in the Secretary's office not latter than October 4, as previously stated. The application fee was given as $15.00 and the examination fee $75.00. The latter figure should have been $85.00. For further information, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

Tuberculosis and Tonsils.

According to Bordley, J., III, and Baylor, John W., Bull. Johns Hopkins Hosp., 1938, 63. sixty-one individuals from whom tuberculous tonsils or adenoids had been removed in the years between 1912 and 1920 were investigated in 1935 at the Johns Hopkins Hospital. Of the forty-five who were less than fourteen years of age when the operation took place but one had died from tuberculosis and forty-two were alive and well. Of sixteen cases who were past the age of fourteen more than half had suffered from pulmonary tuberculosis of the adult type. Incomplete examinations at the time of operation made it impossible to determine in how many cases the disease was already present in this older group. What did seem apparent was that after removal of the tuberculous focus, the children under fourteen rarely showed progressive tuberculosis of the adult type.

The American Congress of Physical Therapy

Will hold its 18th annual scientific and clinical session September 5-8, at Hotel Pennsylvania, New York City. Preceding these sessions the Congress will conduct an intensive instruction seminar in physical therapy for physicians and technicians—August 30-September 2, inclusive.

The instruction seminar should prove of unusual interest to physicians and technicians. The clinics which comprise half of the schedule make this course outstanding for its practical value. As in the past outstanding clinicians and teachers will participate. Registration is limited to 100 and is by application only. For information concerning seminar and preliminary program of convention proper, address American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

While the convention proper will have numerous special program features of scientific interest, the added attraction of the World's Fair should make it extremely worth while for every physician to come to New York and spend a most profitable vacation.

Dr. I. C. Evans,

Class of '38, Medical College of Virginia, who interned during the past year at the Municipal Hospital in Tampa, Fla., is now connected with the Department of Pathology at the Charity Hospital in New Orleans, La.

To Locate in Dillwyn for Practice.

Dr. Hubert Dinwiddie Crow and Dr. Garland Dyches, both of the class of '38, Medical College of Virginia, located, August 1, in Dillwyn where they will be associated in general practice. Dr. Crow has been serving an internship at the Hospitals of the Medical College and Dr. Dyches has been at St. Luke's Hospital, Richmond.

Dr. Copeland Bowers,

Formerly of Dunbar, has located at 713 West Sycamore Street, Kokomo, Ind., for practice.

"You Can End This Sorrow"

Is the title of another U. S. Public Health Service folder in its venereal disease series, designed to emphasize the importance of early examination and treatment in every pregnancy. Copies are available

for one dollar per hundred from the Superintendent of Documents, Washington, D. C. Single copies are five cents.

Dr. James McLean Rogers,

Who, with his family has been on furlough in this country for nearly a year, left Richmond the latter part of July to resume his work at the Alexandra Hospital in Soonchun, Korea, under the auspices of the Presbyterian church. They took the trip by automobile to the Pacific coast, visiting many places of interest en route. Dr. and Mrs. Rogers, accompanied by two of their children, expect to sail for Korea on September 1, the older son returning to study in Virginia.

Associated in Practice.

Dr. A. L. Herring, Richmond, announces the association of Dr. W. Fitzgerald Cavedo in the practice of medicine, surgery and obstetrics, beginning July 1. They have their offices at 401 West Grace Street, this city.

Dr. W. R. Weisiger,

Richmond, junior past grand patron of the Grand Chapter of Virginia of the Order of the Eastern Star, recently was guest speaker at a flag ceremony of the South Hill Chapter.

Dr. J. B. Harvie Waring,

Cincinnati, has recently returned home after a trip to southern Georgia and Florida, where he conducted an instruction clinic in the suction method of removing tonsils. He was accompanied by his son and two doctors from Ohio. Dr. Waring visited in Richmond en route home.

Dr. Kenneth N. Byrne,

Medical College of Virginia, class of '37, has located in Lexington where he will be engaged in general practice, and will also do pneumothorax work for the health department. He interned at the Chesapeake and Ohio Hospital in Huntington, W. Va., and at the Marine Hospital at Key West, Fla., later training in chest work, for three months, at Catawba Sanatorium.

Dr. and Mrs. Byrne also announce the birth of a daughter, Mary Edith Dolores, in June.

Appointments for Health Departments.

Dr. Paul W. Bowden has been appointed health officer of Southampton County to succeed the late Dr. Causey, and entered upon his new duties on July 10.

Dr. H. Garnett Snead has been designated as assistant health officer of the Arlington County Health Department, effective on or aboout July 10.

New Hospital for Marion.

A modern hospital, with rooms for thirty-one patients, is to be erected in Marion in the near future, and will be known as the Lee Memorial Hospital. Dr. George A. Wright will be surgeon and physician in charge and he and the following doctors are listed among the directors: Drs. A. B. Graybeal, George D. Pettit, D. C. Boatwright, A. D. Hutton, and W. M. Sclater.

Officers in American Legion.

Drs. E. J. Nixon and L. S. Early have been named to the executive committee of the Petersburg Post, American Legion, for the coming year.

Home and School for "Exception" Children.

The Thompson Homestead School, located at Free Union, near Charlottesville, is especially adapted to the shy, nervous, retarded or unsocial child. Enrollment limited. For detailed information, write Mrs. J. Bascom Thompson, principal, Free Union, Va. (*Adv.*)

Medical Research Work Done.

Physician having access to complete medical library will locate references or do medical research of any kind. Fees reasonable. Address No. 38, care this JOURNAL, 1200 East Clay Street, Richmond. (*Adv.*)

Home for Convalescences.

A home for the care and treatment of chronic convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

Location Wanted.

Thirty-six years old, temperate, industrious, married Virginia physician desires location for general practice. Will consider associating with older physician contemplating retirement, in Virginia town of 2,000 or more population. Address "Situation", care the MONTHLY. (*Adv.*)

Obituary Record

Dr. Reuben William Bennett,

Well-known physician of Gretna, died July 13. He was sixty-three years of age and a graduate of the former University College of Medicine, Richmond, in 1899. Dr. Bennett had practiced in Pittsylvania County since his graduation. He was a Mason and had been a member of the Medical Society of Virginia for forty years. His wife and three children, one of them Dr. S .O. Bennett of Norfolk, survive him. Dr. R. A. Bennett, of Bedford, is one of his brothers.

Dr. Adam George White,

Prominent retired physician of Lynchburg, died June 3. He was a native of Aberdeen, Scotland, and eighty-one years of age. Dr. White graduated in medicine from the University of Illinois in 1890, and before coming to Lynchburg, practiced general surgery in Milwaukee for nearly thirty years. He was a member of the Medical Society of Virginia and of several other medical organizations. His wife died about three months ago. They are survived by one son, Dr. A. D. Ferguson White, of Lynchburg.

Dr. John Lewis Harvey,

Prominent physician of Floyd County, died June 27 after a long illness. He was fifty-three years of age and a graduate of the former University College of Medicine, Richmond, in 1909. Dr. Harvey was a member of the county board of health and a former member of the General Assembly. He had been a member of the Medical Society of Virginia since 1909.

Dr. Hiram Kilgore McConnell,

Prominent physician of Scott County, died July 14 after an illness of about two weeks. He was born in 1881 and received his degree from the former Hospital College of Medicine, Louisville, in 1907. Dr. McConnell had been a member of the Medical Society of Virginia for the past ten years. His wife, a daughter, and a son, Dr. Fred McConnell, survive him. He was a brother of Dr. R. W. McConnell, of Fort Blackmore, who died last April.

Dr. Henry Holmes Hunter,

Beloved physician of Whaleyville, died June 17, following an illness of several years. He was born in Gates County, North Carolina, in 1875, son of Dr. Henry Holmes Hunter, a surgeon in the War Between the States, and Mrs. Mary Cheek Hunter. He graduated in 1900 from the Medical College of Virginia, and was engaged in the practice of medicine thirty-seven years, twenty-two of which were spent in Whaleyville.

Dr. Hunter was a steward in the Methodist Church, a member of the Nansemond County School Board, of which he served as Chairman for a number of years, a former member of the Nansemond County Democratic Executive Board, a member of McAlister Lodge A.F. and A.M. of Whaleyville, a member of the Medical Society of Virginia and of the Nansemond County Medical Society.

In that part of the county where he spent so many years of his life, he was not only doctor, but friend and adviser for his people. Of gentle and kindly spirit, his gracious manner and wise help will be long remembered in his community. Surviving him are his wife, two daughters and a sister.

Dr. Herbert Mann,

Prominent Richmond physician, died July 7, after an illness of several weeks. He was born in Petersburg and graduated from the Medical College of Virginia in 1903. Dr. Mann served for sometime as an instructor at the College and had been chief surgeon of the Virginia State Penitentiary since 1913. He was a member of several medical and social fraternities. His wife and two children survive him.

Dr. Haliburton McCoy,

Puunene, Hawaii, died July 2 after an extended illness. He was a native of North Carolina and forty-nine years of age. Dr. McCoy graduated from the University of Virginia, Department of Medicine, in 1918, and formerly practiced in Crozet. His wife and three children survive him.

Major-General Walter Drew McCaw,

Retired, former assistant surgeon-general of the U. S. Army, died July 7 in Kingston, N. Y., having been in ill health for several years. He was a son of the late Dr. and Mrs. James Brown McCaw, of Richmond, and seventy-six years of age. Dr. McCaw graduated from the Medical College of Virginia in 1882 and began his army career in 1884, being retired in 1927. During his service in the Army, he received numerous awards and honors. A sister and several nieces and nephews, one of them Dr. J. McCaw Tompkins, of Richmond, survive him.

Dr. Buckner Magill Randolph,

Prominent retired physician of Washington, D. C., died at his home in Warrenton on July 1. He was sixty-seven years of age and a graduate of the Medical College of Virginia in 1898. Dr. Randolph was chief of the medical service at the Walter Reed Hospital during the World War and after the war was retired with the rank of Colonel. His wife and two children survive him.

Appreciation of Dr. M. P. Doyle.

Dr. Millard Percy Doyle was born at McKenney, Dinwiddie County, Virginia, on September 18, 1880. After his graduation in medicine at the Medical College of Virginia in 1907, he served one year as interne in the Norfolk Protestant, now the Norfolk General Hospital, following which he began the very successful practice of general medicine that was so sadly and unexpectedly terminated by his sudden death, on May 8.

In addition to his private professional work Dr. Doyle gave his time very liberally to those organizations that minister to the needs of the unfortunate and the indigent sick of the community. For thirty years he was an active member of the staff of the Florence Crittenden Home, of which at the time of his death he was serving his second term as president. Likewise for many years he was an active member of the staffs of St. Vincent's and the Norfolk Protestant Hospital and, since its reorganization, of the Leigh Memorial Hospital.

Among his patrons, no man was ever more highly regarded, and justly so, because their welfare and comfort were his principal concern. He loved people and the members of his church and of those civic organizations with which he was affiliated will long remember his great friendliness and faithfulness of his attendance on their meetings.

He was rarely absent from meetings of this society and though he did not often engage in technical discussions he was a keen listener, and profited by what he heard.

To those of us with whom he was more closely associated, he showed the happiest aspect of his character. Kindly and quietly dignified in his manner, he also had a very keen appreciation of humor and loved all kinds of sport. Baseball and football were his favorities, and when he could not attend games, the radio by his desk was his refuge.

Already, by his devoted patrons, and by his other friends, both within and without his professional sphere he is sadly missed and it is difficult for them with any great degree of equanimity to contemplate the passing from this life, at the period of his greatest usefulness, of this good man and capable physician.

THEREFORE, IT IS HEREWITH RESOLVED that this brief tribute to his memory shall be made a part of the permanent record of the Norfolk County Medical Society, a copy be sent to Dr. Doyle's family, and one to the VIRGINIA MEDICAL MONTHLY.

HARVIE S. BAKER,
F. D. WILSON,
N. G. WILSON,
Chairman.

The Committee appointed by the Staff of St. Vincent's Hospital drew up the following resolutions on Dr. Millard Percy Doyle.

Dr. Doyle, a native of Dinwiddie County, was born in 1881 and graduated from the Medical College of Virginia in 1907. After his graduation he was appointed on the House Staff of the Norfolk General Hospital and upon completion of his internship he immediately began the practice of medicine in Norfolk, which he continued until the time of his death.

He was active in civic affairs, having served as President of the Rotary Club, and President of the Florence Crittenden Training Home. He was a member of the Norfolk County Medical Society and the Medical Society of Virginia. At the time of his death, he was one of the Chiefs of the Medical Department of St. Vincent's Hospital.

WHEREAS on May 8, 1939, Dr. Doyle passed to his reward:

BE IT RESOLVED that St. Vincent's Hospital has lost one of its loyal friends.

BE IT ALSO RESOLVED that the physicians of the staff have lost a congenial associate and companion.

BE IT FURTHER RESOLVED that a copy of this resolution be spread on the minutes of the staff, and a copy be sent to the family of Dr. Doyle, and that they be published in the VIRGINIA MEDICAL MONTHLY.

J. WARREN WHITE,
PHILIP ST. L. MONCURE,
RUFUS S. KIGHT,
Committee.

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RICHMOND, VA., SEPTEMBER, 1939

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70th Annual Meeting

MEDICAL SOCIETY OF VIRGINIA

Richmond--October 3, 4 and 5, 1939

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TABLE OF CONTENTS—Advertising Page 4
INDEX TO ADVERTISERS—Advertising Page 6

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HOSPITAL CARE FOR THE INDIGENT AND THE LOW INCOME GROUP: A PLAN FOR SUBSIDIZING THE ACCESSORIES OF MEDICINE.

WALTER B. MARTIN, M.D.,*
Norfolk, Virginia.

It is worthy of note that medicine is one of the great social agencies that has not broken down during the past decade of the depression. In spite of widespread unemployment, reduced incomes, and lowered standards of living, the health conditions of this country, as measured by mortality and morbidity rates, have improved. This same decade has also seen a most determined assault upon our present system of medical practice. Medicine, in spite of its accomplishments, has been put on trial. The indictment has been drawn and the case presented largely by a group who neither by training nor experience is familiar with the basic factors concerned in providing good medical care. This assault on medicine has been inspired partly by malignant intent and has resulted partly from widespread social and economic changes affecting the medical welfare of large groups of our population.

There are four main factors concerned in the development of the present unrest over the status of medical care.

1. Changes in economic conditions bearing adversely upon large groups of the population.
2. Increased cost of medical care resulting from advances in the science of medicine.
3. The placing of undue emphasis on the science of medicine as contrasted to the practice of medicine.
4. The effort being made to utilize the problem of medical care as a political issue and as an aid to social revolution.

The first two causes mentioned are more or less interrelated and will form the basis of this discussion.

An increasing cost of good medical care during recent years has gone hand in hand with a decreasing national income. Not only has the indigent group greatly increased in numbers, but just above the line of indigency is a large section of the population whose members are not able to pay the full cost of complete medical care. That there is great variation in the quantity and quality of medical service available to different people is recognized and it is also accepted that there is a vast inequality in the distribution of the cost of such service. Numerous plans have been brought forward that propose a better distribution of medical care and of medical cost. The problem is not a simple one, however, since conditions differ in each state and in each locality and it would not seem possible to devise any complete plan or system applicable to the country as a whole.

It is proposed, therefore, that the problem be approached from the standpoint of subsidizing certain of the accessory services connected with medical care rather than attempting to revolutionize our present system of practice. It has been largely overlooked that the increased cost of medical care is not the result of increased medical fees nor has it resulted in larger average net incomes to physicians. The principal factor in the increased cost has been the advances made in our time in the science of medicine.

A generation ago the well-equipped physician carried in his bag most of the accessories of his art and science. He was able to render what was for his day a good quality of service for the rich and the poor alike. This is no longer true and as a result of the many and varied developments in modern medicine he must now make use of complex and expensive laboratory procedures and of special instruments of precision in the diagnosis and treatment of his patients. The tools of his profession are now too large to be encompassed by his handbag, too expensive to be purchased and owned by a single individual, and

*Dr. Martin is chairman of the Committee on Medical Economics of the Medical Society of Virginia. Report of the Committee to the House of Delegates of the Society appears in this issue of the MONTHLY.

too complex to be operated without special technical assistance. He may develop certain of these necessary facilities himself and thus add to his own overhead or he may center his work about a hospital or diagnostic group.

It has also become necessary to hospitalize an increasing number of patients in order to have access to the resources of modern medicine. At the same time the cost of hospital service has increased tremendously. To the hospital has been added X-ray and clinical laboratories, diet departments, and physiotherapy units, each with its staff of physicians, nurses, and technicians. Each of these departments renders essential service and each adds to the overhead cost to the patient. Physicians eager to avail themselves of the facilities for practicing good medicine crowd the centers and abandon the more remote areas where such advantages are not available. The hospitals in turn have been burdened with the care of a constantly growing number of indigents who can pay nothing and with the low income group which is able to pay only part of its cost of maintenance. In an effort to break even, the hospitals have been compelled to raise their schedule of fees for those who pay their way. This pay group, therefore, meets not only the cost of the service it buys, but pays an additional fee for the care of the indigent and the low income group. Hospitals unable to secure sufficient income from the pay group have been forced to forego needed expansion, limit the purchase of important equipment, and operate with insufficient and underpaid personnel. The high cost of hospital care has prevented many who are in need of hospital service from receiving it, although there has been available an adequate supply of vacant beds.

The effect of these conditions on the physician has been equally disastrous. If he developed his own facilities, the increased overhead necessitated the charging of larger fees. If his patient entered the hospital, all of that patient's available resources were used up in meeting hospital expenses, leaving nothing for the physician. The result of this in drawing physicians away from the rural areas and small towns has already been noted. The effect of advances in modern medical science on the cost of medicine can be illustrated readily. Often the increased cost is concealed, while in other cases it is quite obvious. Pneumonia serum is expensive and its effective use requires competent laboratory service and a personnel trained in the technic of serum administration. Sulfanilamide is cheap and any physician can prescribe it with little expense to himself or his patient; however, if the patient is to be properly treated, the physician must be assured that he is maintaining an optimum blood concentration of the drug. This necessitates frequent laboratory observations. Furthermore, if the patient is to be safeguarded against the ill effects of the drug, frequent blood counts may be necessary. Since the advent of sulfanilamide therapy it has been necessary to add materially to hospital laboratory staffs to take care of the increased laboratory work entailed by the use of that drug. This expense falls immediately on the hospital, but presently will appear in some form on the patient's bill.

It would seem, therefore, that the most logical approach to the solution of our present problem of medical care would be by subsidizing these accessories of medicine. Since hospital expense is the largest single item in the cost of illness in those seriously ill, it would seem reasonable that the first step would be to apply this subsidy to hospital care. Approximately one out of thirteen people who are ill require hospital care and this comparatively small group incurs 50 per cent of the total bill for medical service for all of our people, or approximately $1,800,000,000 annually. It is safe to say that on the average 50 per cent of this expenditure is for hospital care and that in prolonged illness the percentage is much higher. If this item could be averaged for the low income group, the burden incident to severe illness would be greatly reduced. Hospital insurance plans are doing this successfully on a considerable scale, but have been unable to reach the mass of people in the low income group and, of course, do not touch the indigent group at all.

It is proposed, therefore, that the government—local, state, and federal—assume full responsibility for the hospital care of the indigent and that it pay the full cost of such care to each hospital that provides for these patients. Whenever possible this aid should be extended by local government units, supplemented only when necessary by state and/or federal funds. The administration of the fund should be controlled by local boards made up of representatives of the local government, welfare organizations, hospitals, and medical societies. Adequate provision should be made for determining indigency. For the low income or medically needy group it is proposed that a system of subsidy be established

whereby members of this group may purchase hospital service contracts at reduced rates under otherwise the same conditions as such contracts are now sold. The subsidy in this case would be paid to the hospital service association and utilized in providing service contracts at a reduced premium to those under a fixed income level. The hospital service association would in turn pay the hospitals the full per diem cost of hospitalization of these policy-holders.

The advantages that would flow from such an arrangement are many. The indigent patient would be assured of medical and hospital service of high quality. In the low income group the principal item of cost in severe illness would be averaged and by virtue of a subsidy to the hospital service association the premium rate for an individual would be reduced to a level of from $3.00 to $5.00 per year, and for a family to from $10.00 to $15.00 per year. The hospitals would be relieved of the burden of providing for the indigent and low income group at less than cost. They would be in a position to improve their facilities and service and to eventually lower their rates to a cost level for those who pay their way in full. It would make possible the improvement and extension of out-patient departments for ambulatory patients. It would allow the development of hospitals in areas where the need exists, but which heretofore has not been feasible from an economic standpoint. It would insure much fuller utilization of present hospital facilities and stimulate reasonable expansion of such facilities. From the physician's standpoint it would permit him to provide adequate care for the seriously ill patient in the low income group and it would assure him that all of the resources of that patient would not be absorbed in hospital cost.

Hospital service plans have already enjoyed a remarkable growth and, if provision could be made through subsidy whereby contracts could be sold at a reduced rate to the medically needy, a very large proportion of this group could be covered. It has been said that such a plan would remove hospitals from the category of charitable institutions and that it would tend to dry up private philanthropy. I believe that neither of these statements is true. There always will be a large group of individuals not covered by the two classifications above who will be worthy objects of direct charity. Private philanthropy will have full outlet in meeting capital expenditure either in expanding already existing hospitals or in providing new institutions in areas where they may be needed.

The practical working of the plan would not present any insurmountable difficulties. The main impetus should come from the locality and an effective local organization should be established and local resources developed before state or federal funds are allocated. Such funds should supplement local resources only when necessary. The local organization should in general take two forms, although in certain areas the two might, with advantage, be combined.

First, a hospitalization association should be formed which would function as a central admitting bureau. This should be controlled by a local board made up of public minded citizens, representatives of the welfare agencies, hospitals, local government, and medical groups. This board should establish standards of indigency and through proper investigation see that these standards are employed in determining the fact of indigency. Second, this same board or a similar board should develop a hospital service association, either independently or as a branch of such an association in a larger center. This hospital service association should operate along lines already established by similar organizations throughout the United States. They would, however, be subsidized from local, state, or federal funds, so as to sell hospital service contracts at a reduced premium to those below a certain income level. These contracts would in all other respects be similar to those now being sold by the various non-profit associations. They would provide full hospital care for twenty-one or more days, but would not include professional service.

The hospitals would be paid on a per diem basis for the service rendered as they are now by such hospital service associations. The per diem rate would be fixed by the board in agreement with the hospitals and should just cover the actual per diem cost of hospital care. This rate would naturally vary in different communities and in different hospitals in the same community. This variation would be roughly proportioned to the kind and quality of service offered. The policy-holder would have a free choice of hospitals within the areas and would also, of course, have a free choice of physicians. It would be necessary to rate hospitals on the basis of the completeness of the service they are prepared to offer. As hospitals improved their facilities and service, they would improve their rating and would receive a higher per

diem rate of pay. Thus they would not only have the means of improving their standards, but they would have the incentive to do so.

This plan is not intended as a cure-all for the ills of our medical economy, but should serve as a first step in putting within the reach of all physicians the necessary accessories of scientific medicine, and in bringing to the seriously ill the best that medicine has to offer. The word "accessories" is used advisedly, for, after all, it is the physician who must make use of these various aids and apply them to the needs of the individual patient. Good clinical medicine must always remain a matter of the treatment of one patient by one physician.

339 Boush Street.

A PLAN FOR RELIEVING THE BURDEN OF MEDICAL COSTS.

JOHN HUNDLEY, JR., M.D.,*
Lynchburg, Virginia.

A perusal of history demonstrates conclusively that an aroused public demand invariably forces changes in the established order, regardless of laws or customs, traditions or established institutions, and even against the advice or will of its own duly constituted authority. This is democracy as it must and as it should operate.

Beginning with the report of the committee on the "Costs of Medical Care", which was published in 1932, and with increasing volume since, the public has demanded that the facilities of medical care be made universally available, and that the costs of medical care be reduced. There are good arguments on both sides of the question, but many of the arguments lose their force when medical care, and medical costs, are defined. In this discussion I am defining medical care as the availability of the recognized resources of modern medicine to the entire population regardless of financial status. It is more difficult to define medical costs, which simply may be stated as the amount required to furnish such care. Such simple statement however leaves out factors which should be considered. Medical care is not a commodity which can be produced by mass-production methods. Individualization of both patient and disease is demanded if good medical care is to be furnished. Consequently good medical care is expensive. The cost has increased because more is done, as more can be done, both to and for the patient. The increased amount of work required in furnishing good medical care reflects the increasing medical knowledge available. So the costs of medical care, and the costs of furnishing medical care, will not be less but as knowledge grows, and procedures multiply, the costs will increase. Cheap medical care is like any other cheap commodity, merely a poor substitute, which fails of its purpose because it fails to do what is expected. The solution is not cheap medical care but wider and fairer distribution of the costs of good medical care.

The public generally fails to see that viewpoint because it sees only the big hospital or surgeon's bill, which is incurred unexpectedly and for which no preparations had been made. If medical costs for the average family were averaged over a period of years, they would not be found excessive. But since human beings do not reason that way, and are so constituted that only the routine or frequently recurring expenditures are covered in even the best arranged budget, the only way to solve the problem and to meet the demand is to provide facilities for easily and painlessly distributing the costs of medical care.

In my community (Lynchburg, Va.), certain facts may be of interest, and will serve to clarify the issues involved. I practice in a city of approximately 45,000, around 10,000 of whom are negroes. In 1936 there were fifty-seven manufacturing establishments operating, employing 8,990 employees, and a 1935 payroll of $4,328,568.00. Ninety wholesale establishments were operating in 1935 with 699 employees, and a payroll of $1,001,000.00. There were 476 retail establishments in 1935, with 2,125 employees, and a payroll of $1,629,000.00. These figures are derived from Chamber of Commerce statistics, and a W.P.A. sponsored census. To summarize, in those years there was a total employment in the manufacturing, retail, and wholesale establishments of ap-

*Dr. Hundley is a member of the Medical Economics Committee of the Medical Society of Virginia. This and the previous paper by Dr. Martin, chairman, are in explanation of the report of this Committee to the House of Delegates of the Society.

proximately 12,000 with a total payroll in those groups of around $7,000,000.00, or about $583.00 annual income per employee. There are fifty-seven physicians who declare their income with the local commissioner of revenue for purposes of city license tax and the physicians declared approximately $300,000.00 net income for 1938. Adding 25 per cent as the cost of practice, an arbitrary figure arrived at through sampling, the total gross income of the local medical profession was about $400,000.00 in 1938. Dividing that by the population of the community we obtain in round figures $8.90, which closely approximates the amount the average individual spent in my city in the year 1938 for the services of physicians. At the same time the practicing physicians averaged $7,000.00 gross and $5,200.00 net income in 1938.

It is obvious that an individual with an average income of $583.00 annually, will frequently be unable to demand, or to pay for good medical services, on the present basis, but the average lay income is sufficient to place all but the very lowest income group on a self-supporting basis medically if adequate provision is made for sharing the costs.

Before any plan is evolved, or even considered, it is necessary to decide on certain underlying principles. As I see them, they are as follows:

First, that the costs of medical services to the indigent are a responsibility of, and should be borne by the entire population equably, and that the medical profession, in rendering those services, should bear only its proper proportion;

Second, plans should be developed and administered by the local medical societies to assist in meeting the costs of medical care to those who because of low earnings find the costs of such care beyond their ability to pay; and

Third, that any plan developed shall conform to the principles of Medical Ethics of the American Medical Association, and specifically that the principles of free choice of physician, of adequate recompense for services actually performed, of medical rather than lay control shall be maintained, and that there shall be no lowering of the high standards of medical practice.

With that as a background it is possible to proceed to a consideration of the means of meeting the demand, which is after all only the reflection of an actual and demonstrable need. *First,* the plan must be one which in the total will provide a sum sufficient to cover the needs of the group, but individually will be of such an amount, and the payments be so arranged, as to be a part of the regular and expected budget, and as such create no emergency for the unfortunate individual who would otherwise be swamped by the heavy medical expense of unexpected illness; *second,* the plan must be under medical control, as the only group qualified by law and special training to administer such a program; *third,* there must be free choice of physician within the limits of qualification, and willingness to subscribe to the plan; *fourth,* the plan must be economically and actuarially sound.

Therefore it is proposed that the local medical society, as the purveyors of medical services, be empowered to enter into contract with employed groups, for the purpose of reducing the burden of medical costs and more equably distributing those costs. To accomplish that purpose it is proposed that:

1. A specified amount shall be deducted from the payroll each month (or week) and paid into a fund to care for the medical services.

2. No employee shall be covered under this plan, whose average weekly earnings for the preceding eight weeks exceeds $25.00 per week, or a family whose total income exceeds $40.00 per week.

3. The local medical society shall prepare a fee schedule and charges for various services shall conform to that schedule.

4. The funds so raised to cover medical services shall be deposited to the credit of the administrative committee and disbursed by them.

5. A committee to administer the funds, and supervise the working of the plan, shall be composed of three members of the local medical society, and two lay members appointed by them, to represent the interests of the subscribing groups.

6. There shall be free choice of physician to the subscribing employees.

7. Every qualified physician in the community covered shall be eligible to serve under this plan, provided he is a member in good standing of the local medical society and subscribes in writing to the regulations adopted to govern the working of the plan.

8. It is recognized that there can be no reduction of fees, as the problem is not one of cheap medical service, but of the distribution of medical costs. However, there is proposed a progressive reduction in the total amounts of the bill rendered when the total bill for one illness or operation exceeds an agreed amount.

9. The participating physicians shall agree to keep careful records of cases treated under this plan and to submit willingly to review, modification or reduction by the administrative committee, when situations arise which in their opinion require such action.

10. Bills for services rendered under this plan shall be presented every three months, and settled in full, or, if the amount available to cover the bills rendered be insufficient for settlement in full, each bill rendered will be settled on the basis of the proportionate amount available for settlement.

It is recognized that this plan is incomplete, and that any plan adopted must be temporary until sufficient experience has provided the knowledge necessary to prepare a permanent plan. But it is a start toward solving a real problem which can be favorably solved, but from the standpoint of the medical profession will not be if it is decided on the public forum, in the lay press, or in legislative halls.

Much of the criticism of the state of medical practice is at present inarticulate, though there is a very articulate minority, but the feeling is there and some action will certainly be taken. The medical profession must do two things: first, acknowledge the reality of the problem; and, second, present a concrete program looking toward the solution of the more obvious defects in the present state of medical practice. The American Medical Association has up to now done neither, and as a consequence the public has lost confidence in organized medicine and is looking elsewhere for the remedy.

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THE SIGNIFICANCE OF ABDOMINAL PAIN IN CHILDREN.*

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Abdominal pain in children is one of the most frequent complaints for which the pediatrician is consulted. Happily, in the majority of these cases the causes may be immediately obvious and prompt relief obtained when the proper treatment is instituted. On the other hand, there are always a certain number of cases encountered presenting this symptom in which a most painstaking evaluation of all physical and laboratory findings fail to offer a satisfactory explanation for the condition. Barrington states in a recent paper on the subject: "One's first duty in diagnosis in dealing with these cases is to decide whether the symptoms and signs shown by the patient—even though abdominal—really arise from the abdomen". Almost any acute infection occurring in children may be ushered in with abdominal pain as the most prominent symptom; this is notably true of tonsillitis, meningitis, upper respiratory or grippal infections, pneumonia and pleurisy. But in a majority of these cases a careful and complete physical examination will elicit sufficient evidence outside of the abdomen to account for the picture. On the other hand, symptoms occurring in a low right-sided pneumonia or diaphragmatic pleurisy may simulate appendicitis so closely as to make an immediate diagnosis almost impossible. Brenneman states in this connection that "there are times when anyone is entirely justified in being doubtful as to whether there is appendicitis, pneumonia or pleurisy."

The leucocyte count may be high in either case but is apt to be highest in pneumonia. The same thing is true of fever. Physical signs in the chest are often absent in a beginning pneumonic process, but the X-ray will clear this point in almost every case.

Spinal caries is another extra-abdominal condition that may at times present abdominal symptoms simulating appendicitis. I saw a case in a clinic a very short time ago in a girl ten years old whose only complaint at that time was pain in the right lower abdominal quadrant. There was moderate tenderness in that region with some muscle spasm. There was some nausea and the child had vomited twice during the day. The leucocyte count and temperature were normal. She was sent home and put to bed with no food and was seen the next day at which time the pain and tenderness had shifted to the region of the right hip joint and thigh. There was a definite family history of tuberculosis, and an X-ray of the pelvis and spine made the following day revealed a tuberculous involvement of the second

*Read before the Northern Neck Medical Association, October 27, 1938.

lumbar vertebrae. These cases are very rare, but should be considered in any obscure cases.

Abdominal pain from causes involving the genito-urinary tract, such as pyelitis, calculi, congenital abnormalities and acute retention of urine, are by no means infrequent and should as far as possible be ruled out in dealing with this problem. A short time ago I was called at 9 A. M. to see a male infant twenty-one months old who was obviously suffering from severe abdominal pain; the onset was sudden—about two hours previous to the time I was called. Both thighs were flexed upon the abdomen and the child was crying continuously. The abdomen was distended and there was a board-like rigidity. There had been no vomiting and there was no elevation of temperature; aside from the evidence of severe pain the child did not appear very sick. On percussion a flat note was elicited over the lower abdomen extending nearly to the umbilicus. The parents stated that the child had not voided since early the evening before. While I was preparing to pass a catheter the baby suddenly shot out a forceful stream of urine, and passed a large quantity which could not be measured as a good portion of it went on the floor. There was instant relief, the abdomen flattened and softened, and I was unable to palpate the bladder at all. A specimen was secured later on in the day and was normal. Acute retention of urine in an infant at that age without any obvious cause is very rare. It would be of interest to ascertain whether the infant carries residual urine at other times, and a congenital abnormality of some kind should be considered.

Appendicitis is by far the most frequent acute abdominal condition seen in children in which surgical intervention is indicated. In children over three or four years of age the symptoms do not differ from those occurring in the adult, and in the typical case with central abdominal pain at onset, perhaps vomiting, rise in temperature and pulse rate, tenderness and pain which later shift to right iliac fossae, there are no special diagnostic difficulties and one is justified in insisting upon immediate operation in these cases, for, as some writer has stated, "at the stage of acute inflammation there are no signs or symptoms to indicate whether the pathology is subsiding or progressing to a gangrenous state". In the young infant any one or all of the above signs may be lacking or may be difficult or impossible to elicit. Usually in young infants the appendix is at a higher level in the abdomen, but if it is situated below the pelvic brim, which sometimes occurs, muscle rigidity may be absent, and even tenderness may be absent except on rectal examination, which is always indicated in doubtful cases. It is an easy matter to wrongly diagnose some of these cases as intestinal influenza, food poisoning, acidosis, or dysentery, and, even with the most painstaking study and observation, in some of these cases a positive diagnosis without abdominal exploration is often very difficult and sometimes impossible. Several years ago I was called to see a boy eight years old who had been sick three days. There was a history of sudden onset with abdominal pain and vomiting, followed by the passage of frequent bloody stools, with marked tenesmus, and severe cramping pains preceding the passage of each stool. There had been no vomiting for two days when I first saw him; temperature was 99 degrees; the abdomen was flat, but there was a mild general spasticity of abdominal muscles with some tenderness. Stool cultures were negative. Treatment for dysentery was instituted and four days later (seven days after onset) a mass was discovered in the right iliac fossae. An exploratory incision was agreed upon and an appendiceal abscess was drained. The dysenteric symptoms cleared up in a few days time and the child made a satisfactory recovery.

Intussusception: Abdominal pain is a constant and pronounced symptom at the onset of this condition. It usually occurs in healthy infants between the ages of six and eighteen months, predominantly in the male. The onset is sudden, with acute paroxysmal pain, lasting a few minutes and recurring at short intervals. Between the attacks of pain the infant appears listless and unhappy. There is no elevation of temperature at first and no change in the blood picture. A sausage shaped mass can usually be felt in the abdomen a few hours after onset. Bloody stools soon follow, but there may be a normal stool at this stage. A rectal examination is frequently followed by the passage of a variable amount of so-called "current jelly" blood which, aside from the palpable mass, is the most significant finding. The importance of prompt diagnosis in this condition cannot be over-estimated, for the mortality steadily mounts with the duration of the disease. The best results are obtained when the operation is performed within twelve hours after onset.

Acute intestinal obstruction may occur in children from causes *other* than intussusception, such as strangulated hernia, obstruction following an operation, as a sequel to peritonitis, or the result of adhesions following other inflammatory processes. Pain, vomiting, obstipation, and distention are the chief symptoms.

Peritonitis: Primary peritonitis is not very frequently seen in children. It is much more common in the female than in the male. This is notably true in the pneumococcal type which is the one most frequently encountered. The pain begins in the pelvis and spreads upward, there is vomiting and diarrhea, pain on micturition, and rigidity of lower abdomen. The most urgent reason for diagnosis in these cases is the exclusion of appendicitis. Meckel's diverticulum is one of the rare abdominal conditions demanding surgical intervention. It may endanger life by inflammation, perforation and peritonitis, obstruction, intussusception, bleeding into the bowel, or from peptic ulcer, when peptic glands are present. The diagnosis is very difficult and is not often made without abdominal exploration. To quote Brenneman again: "the passage of bright red blood at one time and dark blood at another time is of tremendous diagnostic significance."

Acute Pancreatitis: According to Abt, acute pancreatitis as it occurs in the adult is found so rarely in pediatric literature that it might be considered a medical curiosity. When it does occur, it is characterized by abdominal pain of extraordinary intensity, with *extreme* collapse and rapidly failing outcome. Milder cases have been reported at various times, occurring in children as complications of epidemic mumps. Instances have been encountered during epidemics in exposed individuals who had no involvement of the parotids. In these latter cases pain is constant in the region of the umbilicus, and there is moderate prostration, nausea, vomiting, and slow pulse; glycosuria may be present, but is not constant. The prognosis here is good, recovery usually taking place within a week.

Ovarian Tumors with Twisted Pedicles: Holt and McIntosh stated that ovarian tumors constitute about 1 per cent of all tumors occurring in childhood. Twisted pedicles frequently occur in these cases and produce very acute abdominal symptoms, with severe pain and tenderness in the lower right quadrant. Here a differential diagnosis without exploration is very difficult. On rectal examination, however, a tumor may sometimes be felt, which may serve to differentiate it from acute appendicitis.

Cholecystitis, while not frequent, is occasionally encountered in older children. The pain and tenderness are most pronounced in the upper right abdominal quadrant, do not often present diagnostic difficulties, and usually respond readily to dietary measures.

A good deal has appeared in pediatric literature in the past few years concerning so-called *abdominal rheumatism.* Wolfe and Brimm call attention to a group of children in which recurrent abdominal cramps lasting from six months to several years was the only subjective manifestation of an active phase of rheumatic infection. The cramps last from a few minutes to a few hours and tend to recur frequently. At times there is nausea and vomiting, with pain which is frequently localized around the umbilicus—referred to by Wertheim as "*umbilical colic*". Tenderness and rigidity are usually absent. Other manifestations of the active phase are pallor, weight fixation in spite of a properly balanced diet, irritability without apparent cause, twitchings and tics, and enuresis after bladder control has been established.

It is believed by some that this condition is one of the most frequently overlooked abdominal syndromes to be found in childhood rheumatic disease.

Acute Mesenteric Adenitis is undoubtedly a definite entity which is frequently encountered in children and is often associated with upper respiratory infections. Collins and White, of Washington, D. C., recently reported sixteen cases that were operated upon for acute appendicitis. The appendix was found to be red and a small quantity of clear or cloudy fluid was found in the peritoneal cavity. There was a congested appearance of the vessels of the cecum and small intestines. The outstanding pathology, however, was found in the mesentery of the distal three feet of the small intestine. Normally glands can neither be seen or felt in this region, but in these cases the size varied from one to three cc. in diameter. They had a distinct pearly grey color, and from three to a dozen or more were found. Abdominal pain was a prominent symptom in all of these cases. It was rather severe and constant, but not colicky; it was general, but more marked in the lower than the upper part of the abdomen. Other symptoms were temperature, ranging from 101-103; nausea was found in most cases; leucocyte count varied from 8-12,000; the abdomen was slightly dis-

tended and tender, and the tenderness was most marked in the lower right quadrant. These observers stated that the "appendix appeared in the role of an innocent bystander". I have seen two cases presenting these symptoms and findings operated upon for acute appendicitis within the past year. Both children gave a history of mild upper respiratory infection preceding the abdominal symptoms by a few days. The appendix was involved in both cases but the outstanding pathology was in the mesenteric glands. It is believed by most observers that many of these cases will recover without operation. However, the same thing is true of a simple acute appendicitis without an associated mesenteric adenitis. A differentiation from other types of acute appendicitis is impossible although the indications for treatment are the same in both cases.

Chronic lead poisoning should at least be thought of in obscure abdominal pain. However typical, lead poisoning is rare in children and the lead line is seldom seen. Convulsions are of frequent occurrence in these cases. X-ray of the long bones gives characteristic findings.

Injuries: Contusions of the abdomen from external injury frequently offer serious difficulties in diagnosis. Of 100 cases of abdominal injury occurring in Cook County Hospital abdominal pain was the chief symptom in eighty-two cases. Vomiting occurred in thirty-two cases. Either abrasions, contusions or lacerations and tenderness occurred in seventy-two cases. It was found that local soreness, or rigidity, syncope, and shock were as suggestive of local abdominal wall injury with splanchnic reaction as of grave visceral injuries. In twenty-five out of thirty-nine cases in this group laparotomy or post-mortem revealed that rigidity and tenderness were of no localizing value. Serious visceral injury, not infrequently occurs when there is a complete absence of external signs of injury. Shock is *profound* in these cases and there is a rapid drop in the blood pressure, the red cell count and hemoglobin. A definite diagnosis in some of these cases is frequently difficult, if not impossible without exploration, and where there is much doubt an exploratory incision is justified. Not very long ago I was called to see an eleven-year-old boy who was injured in an automobile accident. There was a fractured femur, tibia, and fibula, but no external signs of abdominal injury. Shock and pallor were profound, blood pressure depressed. There was a generalized spasticity of the abdominal muscles with some tenderness over the upper right quadrant. Splanchnic shock was considered as a cause for the abdominal symptoms but an exploratory operation was deemed advisable. A large quantity of blood was found in the peritoneal cavity and there was active bleeding from a ruptured liver. The rent in the liver was repaired and the bleeding controlled, and a satisfactory recovery ensued in spite of the serious multiple injuries. Obviously delay in surgical intervention in this case would have been disastrous. A sixteen-year-old-high-school girl was seen in consultation on account of severe abdominal pain, nausea and vomiting. She gave a history of slipping from the curbing and falling twenty-four hours previously. She said there was considerable pain in the upper abdomen, with some nausea, but she went on to school in spite of it, but remained only a short time as the symptoms increased in severity. She presented the appearance of a very sick child. There was profound pallor; the pulse was rapid and thready, and blood pressure was depressed. There was a moderate abdominal distention with tenderness and rigid muscles over the upper right quadrant. She was immediately removed to a hospital and seen by a surgeon, but her general condition was so bad that it was decided to delay operation for a while, with the hope that the general condition would improve. However she failed to respond to supportive measures, and her condition grew steadily worse. On abdominal incision twenty-four hours after admission to the hospital the abdomen was found filled with blood from a ruptured liver. This was repaired, but the patient reacted poorly from the operation and died about twenty-four hours later.

Food Allergy is considered a frequent cause of abdominal pain in children, and doubtless plays a part in many cases, but I have not been impressed with the results achieved in cases coming under my observation that have been handled from that angle. In a complete allergic study too many details are involved to justify a discussion in a paper of this type.

Among other conditions to be considered in connection with abdominal pain in children are spider bite, diabetic acidosis, intestinal parasites, thrombosis of the mesenteric vessels and perforated typhoid ulcer in ambulatory cases. But these are relatively

unimportant because of their infrequency and will not be discussed at this time.

In an excellent article which appeared in the *British Medical Journal* some time ago by Dr. Short on the subject of abdominal pain in children, he discussed an entity in children characterized by recurrent mid-abdominal pain without any obvious cause and recurring over many months or years, and the condition usually would become so familar to the child and family that it would be referred to as *"my pain"*. He stated that the condition is difficult to treat and, if there are days or weeks between the attacks, it is scarcely worth doing anything. The children seemed to grow out of it in the course of a few years. He believes that many of these cases are afflicted with mesenteric lymphadenitis. I have recently had a case in a six-year-old boy that fitted in with this picture precisely. The attacks would occur two or three times a week over a period of ten or twelve months and a most careful and painstaking study failed to reveal any cause for the complaint. His weight remained perfectly stationary during that entire period. After several conferences with a surgeon and the parents, an exploratory operation was agreed upon. On opening the abdomen nothing abnormal was found, though what appeared to be a perfectly normal appendix was removed. The surgeon's comment at the time was that we could not promise the family any favorable results from this procedure. The boy had a smooth post-operative recovery, and had a few mild attacks at longer intervals over a period of about one month after the operation. However, he has had no pain during the past four months and has gained six pounds during that time.

The importance of early recognition of acute abdominal conditions occurring in children, that require surgical intervention, is obvious. On the other hand, in a small number of these cases when the diagnosis is doubtful and an extra abdominal condition cannot be ruled out, a delayed surgical approach of a few hours for further study and observation is justified.

In the chronic cases of recurrent abdominal pain in which a careful study has failed to reveal any obvious cause for the symptoms, and the child is failing to gain weight, or is losing weight, an exploratory operation is sometimes justified, since it may reveal evidences of disease that cannot be uncovered in any other way. Even if a normal appendix is removed, the child will be none the worse for it, as the procedure carries with it almost no mortality.

Medical Arts Building.

A REPORT ON THE USE OF SODIUM 5, 5-DIPHENYL HYDANTOINATE IN FOURTEEN SELECTED CASES OF EPILEPSY AT THE VIRGINIA STATE COLONY FOR EPILEPTICS AND FEEBLE-MINDED.*

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In June, 1938, at the meeting of the American Medical Association in San Francisco, several papers were read on the use of Sodium 5, 5-diphenyl hydantoinate, in the treatment of convulsive disorders.

These papers were given widespread publicity by the press, and Dilantin—as it is called for convenience's sake—was soon hailed as a certain cure for any and all convulsions and we began to receive letters and personal requests from relatives of our patients that we use Dilantin in this case and that.

A great deal of work on Dilantin was done by Drs. Tracy J. Putnam and H. Houston Merritt of the Harvard Medical School and the Neurological Unit of the Boston City Hospital.

Their study, presented at San Francisco, embraced patients whose convulsions had not been controlled by accepted therapeutic measures such as phenobarbital, bromides, ketogenic diet, and fluid restriction.

The records of 142 patient who had been under

*Read by Dr. Weaver at the meeting of the Neuro-Psychiatric Society of Virginia, at Colony, Va., on the 28th of October, 1938.

treatment with sodium diphenyl hydantoinate for periods of from two to eleven months were analyzed by Dr. Merritt.

Out of 118 patients with grand mal convulsions, complete relief from attacks was secured in sixty-eight cases (58 per cent). A marked reduction in the number of attacks was noted in an additional thirty-two cases (27 per cent). In eighteen of the 118 patients (in 15 per cent, that is) there was only a moderate degree of improvement or no improvement at all over the status prior to the administration of Dilantin.

In seventy-four patients with frequent petit mal attacks complete relief was obtained in twenty-six (35 per cent) and a marked reduction in the number of attacks was noted in forty-seven (48 per cent). In twelve (16 per cent) there was only a slight improvement or no improvement at all.

Lack of hypnotic or soporific effects of Dilantin was in marked contrast to pheno-barbital and the bromides. In effective dosage it did not make patients drowsy or stuporous. Minor toxic reactions—such as dizziness, ataxia, tremor, blurring of vision, slight nausea, etc.—were noted in 15 per cent of patients treated. Cutaneous reactions occurred in 5 per cent of patients treated. These reactions occurred usually at the end of the first several days of treatment. In most instances they disappeared on temporary discontinuance of the drug and did not reappear when treatment was resumed.

Accordingly, we chose ten patients from among our epileptics—patients upon whom we had complete histories and clinical records. We felt that we would learn more concerning what real value Dilantin might have by administering the drug to a small group of patients whom we could keep under constant observation than by administering it more or less routinely to a large number of patients. We chose five males and five females.

In the course of our trial tests, four of the original ten patients had such definitely adverse results that we substituted four others in their stead.

It was our practice to give the patients one Kapseal Dilantin the first day; two Kapseals the second day; three the third day; and four the fourth day; and to continue the Dilantin dosage at four Kapseals daily unless there was some definite reason for a change. We gradually reduced the pheno-barbital and bromide dosage as the Dilantin dosage increased. By the end of the first Dilantin-week all but two of the fourteen patients were receiving no pheno-barbital or bromides regularly. Cases No. 6 and 7 were receiving one and one-half and three grains of pheno-barbital respectively, in addition to their Dilantin.

We shall try now to give you a brief review of the clinical course of each of the fourteen Dilantin test cases:

CASE NO. 1—ANGELINA A. This patient has been here for seven years; she is now thirty-seven years of age. Her convulsions began when she was thirteen—they have continued for twenty-four years. The diagnosis in this case is: epilepsy, idiopathic.

Prior to receiving Dilantin, she was taking three grains of pheno-barbital daily (and in addition occasional doses of bromides); she was averaging about twelve convulsions monthly; these were of the severe grand mal type, and following them she was usually very much disturbed for some three or four days. She had the characteristic "epileptic personality"; she was forever complaining about something or other; she was upset and irritable most of the time.

Throughout her first Dilantin-month she was drowsy most of the time. In that month she had only four convulsions, during which she fell backward to the floor, in each instance she recovered promptly. She has had no further convulsions since then. She has now been receiving Dilantin for three months—her entire personality has definitely changed—and for the better. She has a sense of well-being and is happy and cooperative.

If she continues to do as well as she has for the past several weeks, we hope to be able to parole her, and we see no reason why she should not be able to remain outside the institution.

CASE NO. 2—BESSIE EDNA R. She has been here for over three years; she is now twenty-one years of age. Her convulsions began when she was five—they have continued for sixteen years. The diagnosis in this case is: epilepsy, idiopathic.

Prior to the administration of Dilantin, she was receiving three grains of luminal daily; and she was averaging slightly over 150 convulsions a month. These were both grand and petit mal, with the petit mal predominating.

She was kept on Dilantin for three weeks. During her three Dilantin-weeks she had many more petit mal convulsions than usual; she remained drowsy all the time; she complained of a severe headache; and her appetite failed. She continually asked that

the Dilantin be discontinued. When, at the end of three weeks, it became apparent that Dilantin was having a definitely adverse effect, her request was granted.

CASE NO. 3—ANNIE MAE W. This patient has been in the Colony for over three years, all told. She is now twenty-one years old. Her convulsions began when she was six and have continued for fifteen years. The diagnosis is: epilepsy, idiopathic.

Before she received Dilantin, she was taking three grains of pheno-barbital a day, and each month she was having an average of twenty-five convulsions of the grand mal type—most of them occurring nocturnally.

During her first two Dilantin-weeks she was very drowsy, and she had five grand mal convulsions—she has had none since, however. During her first five Dilantin-weeks she complained of a persistent and severe frontal headache, and on two occasions she asked that the Dilantin be discontinued. But when we explained that we did not think she had given the medicine a fair trial, she agreed to continue to take it.

For the last three of her eight Dilantin-weeks, she has felt better than she has at an time since she has been a patient at this institution. The headaches have ceased, and she has not been drowsy.

CASE NO. 4—LOUISE G. She has been in the Colony for nearly thirteen years, she is now thirty-nine years of age. Her convulsive disorder appeared when she was eleven—and has continued for twenty-eight years. Encephalogram done at this institution in 1934 showed a great deal of cerebral atrophy. Diagnosis is: epilepsy, idiopathic, with marked mental deterioration.

Before Dilantin was resorted to, she was receiving four and one-half grains of pheno-barbital daily. Despite this she averaged 125 convulsions a month. Most of the convulsions were of the petit mal type, but so frequently did she fall and injure her head that it was necessary for her to wear a football headgear for her protection. At times, she would become quite untidy.

At the end of her first two Dilantin-weeks a marked change was noticeable in her condition. Her convulsions became much less frequent and her mind was much clearer. At the end of the eighth Dilantin-week, she broke out with a severe cutaneous reaction; her face became edematous, her eyes were swollen shut. Upon withdrawal of Dilantin for a week, however, this condition cleared up completely. Dilantin medication was thereupon resumed. At the end of the twelfth Dilantin-week she again had a severe cutaneous reaction; her eyes were so swollen that she could not see. The drug was again temporarily discontinued, but we resumed treatment with it shortly.

She is now able to do without her headgear, and she never has over two convulsions a day: A really remarkable improvement.

CASE NO. 5—FANNIE BELLE G. Fannie has been here for five and one-half years. At this time she is twenty-eight years old. Her convulsions began at the age of six and have occurred for twenty-two years. Our diagnosis is: epilepsy, idiopathic.

Prior to the administration of Dilantin, she was receiving pheno-barbital, chloral, and bromides, none of which proved satisfactory in our efforts to control her convulsions. She was having an average of fifty convulsions a month—most of them were petit mal in type.

From the very beginning, her reaction to Dilantin was anything but favorable. She complained of constant and severe headache, and she had many more convulsions than theretofore—most of them were petit mal in type. We felt that hysteria was associated with some of these convulsions. During the convulsions she became extremely untidy and soiled her bed frequently with both feces and urine—something she had never done before. In addition, she broke out with a skin rash.

At the end of four Dilantin-weeks, when it was quite obvious that no beneficial results were to be expected, we discontinued the Dilantin. The patient is now about as well as she was prior to Dilantin's being administered.

CASE NO. 6—LOUISE BLANCHE W. Louise has been a patient of the Colony for nearly five and one-half years, her age is seventeen years. When she was nine she began to have convulsions; these have continued for eight years. Our diagnosis is: epilepsy, symptomatic.

For the five months prior to the Dilantin treatment, she had averaged 250 seizures a month. She had been having convulsions almost continuously for a week before she received Dilantin. Sodium luminal given intra-muscularly and intra-venously and even spinal drainage had failed to check them.

The very day she first received Dilantin, however, the clinical picture began to change, and at the

end of the first Dilantin-week she was free from convulsions. At the end of the first Dilantin-month and at the end of the second Dilantin-month her eyes became swollen and her face and body were covered with a scarlatiniform rash. Upon discontinuance of the drug for a few days in each instance, however, the rash disappeared.

During her three months Dilantin treatment she has gained twenty-seven pounds in weight; and for the last two Dilantin-months her mental condition has been clearer than for many, many months, theretofore.

CASE NO. 7—WILLIAM S. William has been here for a year and a half. He is now nearly thirteen years of age. He began to have convulsions when he was eight—they have continued for nearly five years. The diagnosis is: epilepsy, symptomatic, traumatic (head injury at eight).

Before he received Dilantin he averaged forty-five convulsions a month, most of them grand mal. Following them he would become mentally clouded and upset for several hours. He could not be trusted to go anywhere unaccompanied. He was antagonistic and pugnacious, and quite dissatisfied with anything and everything.

In his seven Dilantin-weeks he has had but seven convulsions, and recovery therefrom was complete within five minutes thereafter. His personality has improved and he is cooperative and happy. He now runs errands for the attendants, and helps look after some of the smaller boys. He has gained twenty pounds in weight, and his mental condition has improved.

CASE NO. 8—FRANK S. Frank has been a patient of ours for two years and a half. He is now nearly thirteen years of age. He began to have convulsions when he was five—he has had them for nearly eight years. Our diagnosis in this case is: epilepsy, symptomatic, poliomyelitis.

Prior to his receiving Dilantin, he had been taking one grain of luminal and ten grains of bromides a day. He had been averaging twenty-five seizures a month—most of them of the petit mal type. He had gone into status epilepticus twice.

During the first two of his twelve Dilantin-weeks, Frank was very drowsy and stuporous and had to be kept in bed; he had a great many convulsions. During the last six Dilantin-weeks, however, he has had only four convulsions, and his condition has improved markedly both mentally and physically.

CASE NO. 9—ALBERT W. He has been a patient here for almost four years, and is now nineteen years old. His convulsions first appeared when he was twelve and he has had them for seven years. We have diagnosed his case as idiopathic epilepsy.

Before we instituted Dilantin treatment, Albert averaged about ten grand and many petit mal convulsions a month; and in addition, he had frequent psychic equivalents during which he had delusions, hallucinations, and maniacal outbursts. He was cross and irritable, and at times deliberately insolent. It was impossible to permit him to go anywhere unaccompanied by an attendant or another patient. His three Dilantin-months have wrought a startling change. He has had very few convulsions; they are lighter in character and he recovers from them within a few minutes. He no longer has the psychotic episodes that made him so difficult to handle. He is more cheerful and less irritable, and it is now possible to let him go out by himself. He is more alert mentally.

CASE NO. 10—RALPH L. Ralph was admitted to the Colony exactly one year ago. He is now eighteen and one-half years of age. When he was ten years old he began to have convulsions—these have continued for over eight years. Our diagnosis is: epilepsy, idiopathic.

Before Dilantin treatment was instituted, he averaged about fifty convulsions a month—most of them petit mal. He was receiving three grains of luminal each day. It was necessary for someone to be with him at all times, because he was constantly falling and injuring himself.

Since he has been receiving Dilantin, however, he has had no hard falls, and he has not averaged over five grand mal seizures a month (though he still has quite a few petit mal convulsions). During his third Dilantin-week, he had a rather severe cutaneous reaction; upon temporary withdrawal of Dilantin, however, this promptly disappeared.

Now, at the end of his third Dilantin-month, it is evident that Ralph has made a definite improvement under Dilantin medication.

CASE NO. 11—CLYDE P. Clyde has been in the Colony for fourteen and one-half years; he is now twenty-two years old. When he was admitted to the Colony, he was thought to be a borderline idiot, but after he had been here for several months, he was placed in our school where he did well for a number of years. He has worked as office boy for the past

eight years. He had the first convulsion about which we know anything when he was eighteen—he has been having convulsions with gradually increasing frequency since that time. Our diagnosis is: epilepsy, idiopathic.

Prior to Dilantin medication, Clyde was receiving pheno-barbital, grains three, daily. He was averaging six grand mal convulsions a month, and was having occasional series of petit mal convulsions. He was a cheerful and willing worker—except for infrequent irritable states caused by a series of convulsions—and was well-liked by the entire staff. Despite the moderate deterioration that he had undergone as a result of his epilepsy, he was still able to carry out useful work.

As he was the "pet" of the entire staff, suggestion was resorted to—prior to administration of the Dilantin—with a view to increasing the efficacy of the drug. During the first Dilantin-week, it appeared that Clyde was going to obtain beneficial results in excess of our fondest hopes, but the second Dilantin-week told a different story. He became extremely drowsy—several times he fell asleep in the middle of a sentence. He became quite listless and could accomplish nothing. At night he would scream in his sleep. He reported to the psychologist that he was having quite vivid and most unpleasant dreams. Finally, he broke out in a severe rash over the face and entire body; and at the end of the second Dilantin-week he had an acute abdominal crisis simulating an acute attack of appendicitis. Withdrawal of the Dilantin for several days brought about the departure of the untoward symptoms. Resumption of the Dilantin proved quite as unprofitable as before—and it was soon discontinued permanently.

CASE NO. 12—JOHN LEWIS S. John came to the Colony nearly twelve years ago. He is now forty-six years of age. His convulsions first appeared when he was twenty-five—they have continued for twenty-one years. Our diagnosis is: epilepsy, idiopathic.

Before we began treatment with Dilantin, John averaged about three seizures each month—these were grand mal in type and usually occurred nocturnally. He was taking pheno-barbital, grains three, daily Despite his rather rapid mental deterioration, he had been able to work with the engineers.

From the very first, his reaction to the Dilantin was most disappointing. He became very drowsy, and by the end of the first Dilantin-week, he was complaining of a constant and severe headache He was having a great many petit mal convulsions—but no grand mal. In the fourth Dilantin-week he developed an acute gastritis and diarrhea and we found it necessary to hospitalize him. By the sixth Dilantin-week we had to discontinue the Dilantin. He requested that Dilantin be not resumed; we acceded with his request.

Since discontinuance of the Dilantin, his condition has returned to its pre-Dilantin medication state.

CASE NO. 13—JAMES M. This young man was admitted to the Colony nearly four and one-half years ago. Now he is thirty-two years old. He began to have convulsions when he was fourteen; and he has had them for eighteen years. We have diagnosed his condition as: epilepsy, symptomatic, traumatic.

Prior to Dilantin medication, James was receiving three grains of pheno-barbital daily and was averaging about five hard grand mal convulsions a month. Following a seizure he would at times become violent and maniacal and it was difficult to control him. He was willing to fight on slight provocation, but he did not, so to speak, go about with a chip on his shoulder—he was quiet and rather seclusive.

During his six Dilantin-weeks, he had but two grand mal convulsions—these were very severe; they occurred nocturnally—following them he was markedly confused and difficult to control. During these six weeks he felt sleepy and drowsy all the time; he lost weight; and his appetite failed. He described the period during which he received Dilantin as a veritable nightmare.

Since it was obvious that the Dilantin could not be expected to produce beneficial results in this particular case, it was discontinued. James immediately began to clear up mentally and he soon regained the weight he had lost.

CASE NO. 14—GEORGE B. Approximately a year ago, George was transferred to the Colony from the Eastern State Hospital. He is now twenty-two years of age. At the age of seventeen he began to have convulsions—these have continued for five years. Our diagnosis is: epilepsy, idiopathic.

Prior to his taking Dilantin, he was receiving three grains of pheno-barbital a day, and was having about fifteen hard grand mal convulsions a month. He was quick-tempered, irritable, violent and destructive; at times he had definite delusions of persecution. He

likewise had psychic equivalents and occasionally he would be quite demented.

During his first Dilantin-month his general condition improved—he then began to have convulsions; we increased his dosage to five Kapseals a day. Following that he continued to have convulsions and in addition became very much disturbed mentally. During his second Dilantin-month he was completely disorientated as to time and place; he was untidy, sullen and negativistic. His condition became so bad at the end of his second Dilantin-month, the drug was discontinued. It has now been two weeks since he has received any Dilantin; he is rapidly resuming his pre-Dilantin general condition.

TO SUMMARIZE: We have administered Dilantin to fourteen of our epileptic patients for periods of from two weeks to three months. Eight of the patients have been definitely benefited—six of them markedly so. The general results in six cases, however, proved so adverse that it was necessary to discontinue the Dilantin.

Nine of our patients had a diminution in the number of their convulsions; two had a reduction in the severity of their convulsions. The general mental condition of six improved. There was a definite improvement in the post-convulsive state in three of the patients. Two patients had a very marked improvement in personality. In one case that had had numerous psychotic episodes, these disappeared. Two patients made marked gains in weight. One patient developed a rather unusual—certainly for her—state of well-being.

It is worthy of mention that cases number 6 and 7, both of whom were markedly improved, were receiving pheno-barbital in addition to the Dilantin—which certainly suggests synergistic action.

So much for the favorable results. Let us now consider results that were not so favorable: six of the patients were extremely drowsy for from two to six weeks after Dilantin medication was begun. Three suffered profound psychic distress. Three had an increase in the number of their seizures. Three complained of persistent and severe headache. Five patients developed a severe cutaneous reaction—in two cases this was complicated by edema of the face: it is only fair to say that these reactions disappeared upon temporary withdrawal of the drug (though in two cases there was a later recurrence). One patient who had been having only a few grand mal convulsions a month, began to have frequent and numerous petit mal convulsions. One patient who had never before been incontinent became so after receiving Dilantin, for several weeks. One patient had an acute abdominal crisis that simulated acute appendicitis. One patient had a severe gastritis and diarrhea. Marked loss of appetite occurred in two cases.

From our brief experience it would appear that one will know within a short time following its administration whether or not to expect favorable results from Dilantin. It is a powerful drug; it appears to be more toxic and more dangerous than pheno-barbital. In our opinion, the patient receiving Dilantin should be under close observation by his physician.

In the cases that were benefited by Dilantin, the improvement was not solely a diminution in the frequency and a lessening in the severity of the seizures: that could quite probably have been brought about by massive doses of pheno-barbital, bromides, or chloral. The Dilantin, it is pleasing to report, brought about in several cases a rather remarkable improvement in the patient's personality, behavior, and mental alertness. A very important improvement indeed!

We are well aware that a certain number of epileptics will improve for a period of time if any new treatment is instituted. We also fully realize that our series of cases is small and that the time element involved has been very short, but, none the less, we believe that Dilantin is to be regarded as a valuable addition to the armamentarium available for the fight against convulsive disorders.

APHTHOUS STOMATITIS TREATED WITH SULFANILAMIDE—REPORT OF TWO CASES.

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Many spectacular results have followed the use of sulfanilamide in various types of infection. In most of the cases in which beneficial effect has been reported, the drug has been administered by mouth. Although sulfanilamide has been used locally in infections with good results, this method of utilizing the drug has not been emphasized. It is well known that non-specific, recurring ulcers in the mouth cause distressing symptoms and are resistant to treatment. The following cases of aphthous stomatitis are reported because the condition was particularly resistant to other forms of treatment and responded promptly to local application of sulfanilamide.

Case 1.—A white woman, forty years of age, was examined June 4, 1937, because of recurring diarrhea and almost continuous aphthous stomatitis of four years' duration. Her general health was good, and examination, including complete investigation of the gastro-intestinal tract, failed to reveal an organic cause for the symptoms. The patient was highly emotional, and nervous stress seemed to precipitate attacks of diarrhea. It was thought that the looseness of the bowels could be explained on a neurogenic basis. The ulceration in the mouth was present at all times, although it varied in severity and did not appear to be related to the diarrhea.

The eruption in the mouth consisted of small, superficial ulcers involving the margin of the tongue, floor of the mouth, and inner surface of the lips and cheeks. When ulceration was particularly severe, pain prevented mastication, and the diet was limited to liquids. Because of the belief that aphthous stomatitis is a manifestation of deficiency in vitamins, fruit juice and vitamins in various forms were administered. Fruit juice increased discomfort in the mouth and intensified the diarrhea. Nicotinic acid was administered without benefit. Various drugs had been applied locally on previous occasions without helpful effect.

On September 7, 1938, the patient was instructed to apply a small amount of powdered sulfanilamide three or four times a day to the ulcers in the mouth. Within a week after beginning treatment, the ulcers disappeared. On several occasions there has been a suggestion of recurrence, but use of sulfanilamide has prevented development of ulceration. In addition to relief from ulceration in the mouth for the past three months, the severity of the diarrhea has been reduced, symptoms having been noted on only one occasion since beginning sulfanilamide therapy.

Case 2.—A white woman, forty-two years of age, came for examination October 10, 1938, because of hoarseness that had been present for three weeks. For as long as she could remember, she had had recurring ulcers in the mouth with intervals of freedom of not more than two or three weeks. Sixteen years previously she had had painful deglutition which had persisted for six or eight months. Esophagoscopic examination had not been made at that time, but following roentgenoscopic study a diagnosis of ulceration just above the cardia had been made. She had been kept in bed for four months with complete recovery from dysphagia.

The ulceration in the mouth and throat continued with the same degree of severity. At times there was much pain associated with mastication and deglutition. Three weeks before the patient reported for examination, the throat had become extremely sore and hoarseness had been noted, especially in the morning. There was pain in the right ear and much discomfort on swallowing but no actual obstruction to passage of food into the esophagus. Many types of treatment had been utilized without beneficial result.

General physical examination disclosed nothing of significance save extensive laceration of the perineum and cervix. Various laboratory studies including roentgenoscopic examination of the thorax did not reveal anything abnormal. Examination of the mouth disclosed several moderate-sized ulcers on the margin of the tongue and buccal surface of the cheeks. Various areas were extensively scarred, representing the site of previous ulcers which had healed.

Indirect examination of the hypopharynx re-

vealed a large, ulcerating lesion involving the right half of the right arytenoid area with extension into the right pyriform fossa. Ulceration was sharply demarcated, and appeared superficial and covered with pseudo-membrane. The tissues were reddened and edematous. Upon direct laryngoscopic examination a small piece of tissue was removed from the base of the ulcer. Microscopic examination of this tissue revealed chronic inflammatory change, but no evidence of specific disease or tumor.

The conclusion was that the ulceration in the hypopharynx was similar to that on the tongue and inner surface of the cheeks, and local application of sulfanilamide was recommended. At first the drug was blown into the hypopharyngeal area once a day for ten days. In addition, because of painful deglutition, the throat was sprayed with a solution of cocaine before meals. Later, the patient was instructed to masticate and swallow a 5-grain tablet of sulfanilamide three or four times daily.

Within a week after treatment was begun, improvement was noted and in three weeks' time the ulceration had healed, and the patient was free from symptoms. After use of the drug was discontinued for two weeks, a tiny ulcer reappeared on the inner surface of the lower lip, and further medication was advised.

COMMENT

Although the etiology of aphthous stomatitis is undetermined, local application of sulfanilamide has apparently helped two patients whose symptoms were unusually severe and who had failed to respond to other types of treatment. Since some of the drug was swallowed, it is possible that the benefit resulted from general action of the drug as well as from local effect.

ACUTE ENCEPHALITIS WITHOUT APPARENT CAUSE.

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and
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REPORT OF A CASE

Manifestations of acute or non-suppurative encephalitis, comparatively rare until within the last decade, are encountered more frequently in pediatric practice. The increased incidence of this condition may be due to a greater interest on the part of the physician. Most of these cases of encephalitis are associated with certain contagious diseases, eruptive fevers, and other preceding infections and toxic processes. Reports of cases of acute encephalitis of the non-suppurative and non-epidemic type, without a recognizable preceding infection or toxic process, have not been encountered in literature. A case of acute encephalitis in a boy, aged ten years, without a preceding infection or toxic process, was reported by Jose Maria Macera and J. Pereyra Kafter, abstracted in the *American Journal of Diseases of Children*, Volume 48, page 438 (1934).

Our case occurred in a white boy, aged two years. B. L. H. was brought to the office on June 9, 1938, in coma. Physical examination was negative except for a bilateral convergent strabismus and inability to walk. There were no convulsions. The reflexes were normal. The day previous, the parents noticed that the child was drowsy. His temperature was 100.8 by rectum. The swallowing reflex was present. On spinal puncture, a normal quantity of clear fluid was obtained under moderately increased pressure. There was no increase in the cell count, and no increase in globulin. Culture was sterile. Urinary and blood findings were negative. In the evening, the temperature came down to normal.

The following morning, the child was playing and appeared perfectly well. On walking, a slight limp was noticed. No sequela were reported a few weeks later.

There are a number of syndromes associated with the acute non-suppurative encephalitides in childhood. These syndromes overlap each other. There is the convulsive syndrome, in which the convulsions may be generalized or focal and are usually associated with fever, loss of consciousness, and respiratory disturbances; a somnolent ophthalmoplegic encephalitis, characterized by somnolence, ocular paralysis, and fever; a somnolent paretic syndrome, characterized by somnolence and paresis of certain

muscles, particularly the muscles of the legs; and many other syndromes.

Our case presented a clear-cut somnolent ophthalmoplegic syndrome with no sequelae.

CASE OF ADDISON'S DISEASE WITH FAILURE OF CORTICAL EXTRACT THERAPY—CASE REPORT.

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This case was first seen on May 15, 1934. She was a white woman, age twenty-eight years, who first noted weakness with pigmentation of the skin after the normal birth of her only child in 1932. At this time there was marked pigmentation of the face, extensor surface of the arms and exposed parts of the trunk. Buccal mucous membranes were mottled brown, and there were white raised papules covering the soft palate. Cortical Extract (Eschatin) was given daily. Her tolerance was limited as urticaria developed, in doses of over 5 cc. Salt, 10 grams daily, was added to her diet. While she claimed to feel stronger, no actual improvement was noted and her blood pressure remained at from 60/40 and 84/60. She was referred to Johns Hopkins Hospital, in December, 1934, where she remained until March 30, 1935. Salt therapy, 15 grams daily, was continued after leaving the hospital. She was able to be about, but with difficulty because of her profound weakness until May 3, when she developed an acute coryza. On May 13, she developed violent headache, nausea, vomiting and became comatose. She was sent back to Johns Hopkins Hospital where she died on May 20.

AUTOPSY REPORT OF JOHNS HOPKINS

Bilateral cortical atrophy of the adrenals, absence of basophilic cells in hypophysis, lymphoid hyperplasia of thyroid.

This was a case which did not actually improve with either cortical extract or salt alone or in combination.

1252 Sixth Street, Southwest.

ABDOMINAL PAIN COMPLICATING PREGNANCY.

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This paper was prompted by two recent cases of appendicitis complicating pregnancy, which necessitated surgical attention. I shall endeavor in this brief paper to formulate some differentiation of the possible conditions which may cause abdominal pain during pregnancy.

Probably one of the most frequent infections of any portion of the gastro-intestinal tract complicating pregnancy, which develops sufficiently to be diagnosticated and treated, is appendicitis. It is not probable that pregnancy predisposes to an initial infection of the appendix but there is no doubt that in the presence of a latent appendicitis pregnancy predisposes to recurrent attacks or to lighting up the infection into one of acute activity. Numerous factors naturally contribute to this effect. Stretching and pulling of a spiral or kinked appendix and tearing of old adhesions may be caused by the growing uterus. Moreover, the increased constipation during pregnancy and the various congestions of the pelvic and abdominal organs constitute conditions favorable to inflammation of the appendix. In mild types of appendicitis the course during pregnancy does not differ essentially from that seen in non-pregnant women, but, if perforation or suppuration takes place, the danger of fatal peritonitis is much greater in pregnancy. The explanation of this is that the cecum and appendix are forced from the protected recess, in which they normally live, forward and upward into the free abdominal cavity. The omentum is prevented from performing its usual walling-off service by the intervention of the gravid uterus, which tends to keep it in the left side of the abdomen. The collection and isolation of the inflammatory products

in the pelvis, which is usual in the ordinary case of acute appendicitis, is impossible during pregnancy because the pelvis is filled with the gravid uterus. Hence it will be seen that the peritoneum during pregnancy is especially exposed to general infection from a suppurating process of the appendix.

Still more dangerous is an acute suppurative appendicitis that occurs at the time of labor, or an appendiceal abscess that, by its attachment to the uterine wall, precipitates a premature delivery. Here the sudden diminution in size of the uterus and the general change that takes place in the position of the abdominal organs rend the protecting adhesions and cause a discharge of pus into the free peritoneal cavity, a disaster which surgical operations seldom remedy.

The differential diagnosis of appendicitis is sometimes a very difficult problem. It is most essential that the urinary tract be ruled out in both the pregnant and non-pregnant individual. Appendicitis like all infectious diseases may cause repercussions on the whole organism and give rise to reflex phenomena in the urinary apparatus. In general, the urinary organs are fixed in a determinable position, although the kidney may be displaced because of adhesions or by ptosis. The appendix, however, may occupy distinct and variable positions that change its usual anatomical relations. By the simple relation of proximity, an appendicular inflammatory process may extend itself to kidney, ureter or bladder.

When the appendix is ascending, retrocecal or laterocecal and is contiguous with adipose perirenal area, a suppurative perinephritis may complicate appendicitis, giving rise to painful pressure and percussion in the lumbar region if the pus collects posterior to the kidney, or in the axillary line and below the costal arch in the inverse case. If the contiguity is with the right inferior pole or with the renal pelvis, there may occur a right pyelitis or pyelonephritis. If the inflamed appendix lies in direct relation to the ureter, or over it, or adheres to it, there is relatively frequent ureteritis as evidenced by hematurias due to compression of the ureter, and a dilatation of the upper urinary passages.

Frank urinary disturbances may be provoked by pelvic appendicitis producing perivesical inflammation and possible vesical fistula unless appendectomy is performed. Thus urinary symptoms caused by appendicitis constitute an operative indication and not a contraindication.

Right-sided renal or urethral lithiasis causes the most frequent confusion, and necessitates minute examinations. The urinary disturbances, location and radiation of the pain, which is intense but shorter, lumbar tenderness, pyuria and hematuria, and lack of leucocytosis, suggests lithiasis. The comparative calm of the appendicitis patient contrasts with the extreme discomfort of the patient with renal colic who does not find a moment of rest. An intense hematuria never appears as an initial symptom in acute appendicitis, though it may be in chronic appendicitis.

Right uronephrosis gives reflex vesical symptoms which are lacking almost absolutely in appendicitis; more or less intense pollakiuria with very frequent micturition, dysuria, terminal pain, oliguria; these symptoms disappear on passage of the pain and substitution by a polyuria. Palpation will aid in large uronephrosis.

In functional hydronephrosis, there is pain similar to renal colic which shows itself only in the upright position and with some force and then passes entirely and rapidly.

Moveable or ectopic kidney, with or without concomitant uronephrosis, in an acute painful crisis of retention, may be diagnosed by the nature and radiation of the pain, the vesical urinary symptoms, the normal temperature and manual palpitation in the horizontal and upright positions once the crisis has passed.

Renal tuberculosis causes pyuria, hematuria, albuminuria and bacilli of Koch may be found in the centrifuged specimen. Vesical symptoms usually bring the patient to the physician.

Pyelitis gives lumbar pain and tenderness, and pyuria. When the pelves of both kidneys are infected, the pain is bilateral. Often accompanying this pain is a sensation of burning or smarting along the course of the ureter and this disagreeable sensation may be continued even in the region of the urinary bladder. In the severe cases, where the infection becomes acute, there may be nausea and vomiting—occasionally counterfeiting the symptoms of acute appendicitis. There is often some interference with the intestine and moderate distention of the bowel. Examination of the catheterized specimen with culture or stained smear, and occasionally cystoscopy with caution will affirm or disprove the diagnosis of pyelitis.

We still lack an absolutely accurate method of

diagnosticating an early ectopic pregnancy. Here the history may be of great value. When a patient states that she has been married for some time without conception, and that the condition which brings her to seek medical advice is attended by the first essential disturbance of menstruation since marriage, this should put the obstetrician on his guard. However, the history, although it may be given as accurately as the patient is able to give it, may be a source of considerable confusion. Chronic salpingitis, or an ovarian cyst with a twisted pedicle, may also simulate the irritation of a growing ectopic pregnancy. Fortunately for the patient, an intra-abdominal condition which causes chronic irritation and affects the general health can be dealt with properly only by abdominal section, and this would immediately establish the diagnosis and lead to the correct treatment; however, it is more desirable to make a proper interpretation before the operation if possible.

It must be remembered that occasionally a double tubal pregnancy, or pregnancy in both fallopian tubes may be present, also that there may be a twin pregnancy—one in the uterus and the other outside the uterus. In some instances a pathological condition of the pelvic organs may be accompanied by an ectopic pregnancy. In all these cases surgical intervention is necessary.

A. Mathieu stresses pain as a most important symptom of ectopic pregnancy, and defines eight types of pain connected with this condition, as:

"1. Acute lancinating pain coincident with rupture of the tube.

2. Dull, constant pain associated with stretching and slow tearing of the tube before rupture.

3. Crampy, almost constant pain caused by peristalsis of the tube and dilatation of the distal end of the tube during a tubal abortion.

4. Soreness and tenderness of the entire abdomen caused by irritation of the peritoneum from escaped blood.

5. Phrenic or shoulder pain produced when the blood gets high in the abdominal cavity, under the diaphragm, and irritates the phrenic nerve endings—this pain being felt on either side or both sides of the neck.

6. Pain elicited by the deep muscle resistance that results when the palpating fingers sink deeply enough to cause pressure on the parietal peritoneum. When there is free blood in the abdominal cavity, palpation of the anterior abdominal wall is always pathognomonic. There is generalized pain or soreness over the entire abdomen and with fairly light palpation the fingers will sink part way into the abdominal wall without resistance, only to be met by a rather doughy resistance as the fingers sink deeper. This tenderness is quite unlike that of the acute firm resistance and tenderness one finds in acute appendicitis with peritoneal involvement.

7. Pain produced by moving the cervix or the fundus.

8. Generalized pelvic tenderness and pain produced by the palpating fingers."

Decidua found in the uterine bleeding is quite diagnostic but the absence of decidua might mean nothing since the decidua may separate and pass out before the curettage takes place.

Hysterosalpingography has also been stressed as a valuable aid in diagnosis. It may be said that metrorrhagia of some degree is a strong affirmative symptom of the existence of ectopic pregnancy, the strength of the sign as a factor in diagnosis increasing as the coordinating facts are developed in the study of the individual case. It is also well to note that a slowly rupturing tubal right-sided pregnancy may give the tenderness, partial rigidity of abdominal muscles, leukocyte count, slight fever, disorders of pulse, nausea and vomiting of a mild appendicitis.

The urobilinogen and icterus index tests are of distinct value in determining the presence of a hematoma or of blood in the process of absorption.

The pain from an ovarian cyst with a twisted pedicle is quite severe and is often a very puzzling condition. There is a moderate amount of rigidity and later a slight rise in temperature and leucocytosis.

The patient often gives a history of several similar attacks—perhaps not so severe—which subsided in a few hours. This condition is also frequently accompanied by uterine bleeding; the mass may be palpable by bimanual examination.

There is no doubt that pregnancy aggravates a pre-existing cholecystitis. The diagnosis here is made upon the history of previous attacks, impaired appetite, disturbed digestion, fever, nausea and vomiting and perhaps jaundice. The very high fever, delirium, intense jaundice and rapidly fatal course of acute yellow atrophy must be differentiated. Cholecystitis rarely brings on premature labor or

abortion unless the case is complicated by peritonitis and, therefore, palliative treatment of a complicating cholecystitis is wisest until after delivery.

Infection and inflammation of Meckel's diverticulum is scarcely recognized accurately before operation. The obstetrician must not be deceived by the reflected pain on the left side of the abdomen, which often accompanies appendicitis. The usual treatment for this condition should be employed, and again the question of first emptying the uterus arises.

An exacerbation of chronic colitis or enteritis might easily be caused by pregnancy. This diagnosis is made evident by interference with the normal peristalsis of the bowels—the presence of more or less distention and accumulation of fluid and gas, intestinal pain often severe and colicky in character, moderate fever, increased pulse rate, inability to take food, diarrhea or constipation—nausea and vomiting and history of pre-existing condition. This condition must be differentiated from intestinal obstruction. The pain of intestinal obstruction is only moderately severe at first. It is crampy in character, intermittent, accompanied by nausea and vomiting and, after the lower bowel is emptied, by constipation, and usually visible peristalsis is present for the first twenty-four hours.

Gastric or duodenal ulcer may be seen in young anemic individuals or in women whose tissues are more or less sluggish in activity and nutrition and in whom one may suspect the gradual development of malignant change which is rarely or never found during the child-bearing period. Young women of the servant class, who come to this country and suffer from amenorrhea as the result of change of climate, may become pregnant and develop gastric or duodenal ulcer. The characteristic disturbance of digestion may be continuous with pernicious nausea of early pregnancy; however, when the latter can be eliminated and the hygiene of pregnancy instituted, it may be possible to make the diagnosis of gastric or duodenal ulcer.

The pain of pancreatic calculi very closely resembles that of biliary calculi and frequently can not be distinguished from it. The pain of acute pancreatitis is severe and fulminating in character, located in the epigastrium, accompanied by severe shock and muscular rigidity. The pain of chronic pancreatitis is almost identical with that of chronic cholecystitis. It extends over a long period and there may be tenderness over the head of the pancreas. It must also be remembered that pain is almost always the first symptom of pancreatic carcinoma.

Embolism of the mesenteric vessels is accompanied by sudden, intense and violent pain, sudden shock, bloody diarrhea, and there is usually a history of some form of infection, such as endocarditis, or phlebitis of the lower extremities.

Lastly, one must remember that the gravid uterus itself causes pressure pains in the abdomen.

Wainwright Building.

Correspondence

Honor to Whom Honor is Due.

Lexington, Va.
July, 1939.

TO THE EDITOR:

The many friends of the late Dr. Lewis G. Pedigo* will be interested to know that this recognition has come to him—posthumous but none the less merited.

E. P. TOMPKINS, M.D.

THE LILLY RESEARCH LABORATORIES
ELI LILLY AND COMPANY
INDIANAPOLIS, IND., U. S. A.
APRIL 25, 1939.

DR. LEWIS G. PEDIGO
SALEM, VIRGINIA
MY DEAR DR. PEDIGO:

You may be interested to know that the antidote for cyanide poisoning to which you made pioneer and important contributions has proved to be of much value. The following references may be of interest to you:

Ingegno, A. P., and Franco, S.: Successful treatment of two cases with intravenous sodium nitrite and sodium thiosulfate. Indust. Med., 6:573, 1937.

Williams, C. L.: An unusual case of cyanide poisoning during fumigation. Pub. Health Rep., 53:2094, 1938.

Other reports by private communication which are on my file also show promising results.

In the near future, I hope to write another article summarizing all the clinical data on hand, and intend to print your picture, so that your work will be perpetuated fully. Will you please, therefore, be good enough to send me a photograph of yourself at your convenience? If this involves an expenditure, I will be only too delighted to defray same.

Hoping that you will grant my request, and wishing you good health and happiness, I remain

Yours respectfully,
K. K. CHEN, PH.D., M.D.,
Director of Pharmacologic Research.

*Dr. Pedigo died November 21, 1938.

Pre-Marital Physical Examination Required in New York.

ALBANY, N. Y.,
AUGUST 4, 1939.

TO THE EDITOR:

The New York State Legislature in 1938 passed a law requiring a physical examination including a standard serological test for syphilis on all applicants for marriage licenses within the State.

Several instances have been called to my attention in which residents of other states have had difficulties in securing marriage licenses in New York State because of misinterpretations of the law by themselves or their examining physicians. In order that such inconveniences may be avoided, I should greatly appreciate it if you would, through your JOURNAL, inform the medical profession of your State of the provisions of the New York law.

That part of the Act as amended and effective July 1, 1939, referable to these examinations reads as follows:

"Physician's examination and serological test of applicant for marriage license. 1. Except as herein otherwise provided, no application for a marriage license shall be accepted by the town or city clerk unless accompanied by or unless there shall have been filed with him a statement or statements signed by a duly licensed physician or by a commissioned medical officer of the United States army, navy or public health service that each applicant has been given such examination, including a standard serological test, as may be necessary for the discovery of syphilis, made on a day specified in the statement, which shall not be more than the thirtieth day prior to that on which the license is applied for, and that in the opinion of the physician the person therein named is not infected with syphilis, or if so infected is not in a stage of that disease whereby it may become communicable."

The law further states that "a standard serological test shall be a laboratory test for syphilis approved by the state commissioner of health and shall be performed by the state department of health, or in the city of New York by the department of health of such city, or at a laboratory approved for this purpose by the state department of health, or in the city of New York, by the department of health of such city."

I offer the following comments relative to its interpretation:

1. A duly licensed physician means any physician duly licensed to practice medicine in the state in which he resides or in which he maintains his office.

2. The date of examination is interpreted to mean the date on which the specimen of blood is taken.

3. The state commissioner of health and the state department of health referred to mean commissioner of health of the State of New York and the New York State Department of Health.

4. Laboratory tests made as a part of premarital examinations for persons applying for marriage licenses in New York State, outside of New York City, as well as the laboratories in which these tests are performed, must be approved by the New York State commissioner of health. For administrative reasons laboratories within New York State only have been approved for tests on applicants for licenses in the state exclusive of New York City.

5. The Commissioner of Health of the city of New York has approved certain out-of-state laboratories for the performance of serological tests on persons applying for marriage licenses in New York City. Requests for information concerning laboratories approved by the New York City Department of Health should be addressed to that department at Worth and Centre Streets, New York City.

OUTLINE OF PROCEDURE FOR EXAMINATION OF OUT-OF-STATE APPLICANTS FOR MARRIAGE LICENSES IN NEW YORK STATE EXCLUSIVE OF NEW YORK CITY.

1. Any physician duly licensed to practice medicine in the state in which he resides or in which he maintains his office may perform the necessary physical examination.

2. The specimen of blood must be sent to an approved laboratory in New York State. It is suggested that specimens be sent to the Division of Laboratories and Research, New York State Department of Health, New Scotland Avenue, Albany, N. Y., where examinations will be made free of charge.

3. The specimen should be labeled "for premarital examination."

4. The use of air mail is recommended when the specimen must be sent a great distance.

5. Upon completion of the test the laboratory will send the physician, in addition to the usual laboratory report, a certificate to the effect that the serological test was performed as a part of a premarital examination.

6. If, in the opinion of the examining physician

the applicant is free from syphilis or does not have the disease in a stage which may become communicable, he should complete the certificate as indicated thereon.

7. The certificate is given to the applicant who will submit it to the clerk when the marriage license is applied for.

If these procedures are followed, there should be no difficulty in obtaining the license.

For further information relative to the marriage of persons in New York State, exclusive of New York City, communications should be addressed to the Division of Syphilis Control, New York State Department of Health, Albany, N. Y.

EDWARD S. GODFREY, JR.,
Commissioner of Health,
State of New York,
Department of Health.

Public Health Statistics

I. C. RIGGIN, M. D.
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for July, 1939, compared with the same month in 1938 follows:

	1939	*1938*
Typhoid and paratyphoid fever	123	135
Diphtheria	56	63
Scarlet fever	54	47
Measles	438	439
Meningitis	6	8
Poliomyelitis	6	13
Rocky Mountain spotted fever	12	34
Typhus fever	1	0
Undulant fever	4	5
Tularemia	7	12

REPORT ON THE DIPHTHERIA IMMUNIZATION PROGRAM

The diphtheria immunization program inaugurated by the Department in January, 1939, was completed April 1, with twenty-six counties without full-time health service having participated in the program.

This work was initiated as a result of an observed increase in the incidence of diphtheria during the last six months of 1938 and represents a cooperative undertaking between the Child Welfare Committee of the Medical Society of Virginia, the local boards of health, the local physicians of the participating counties, the state and local departments of education and the State Department of Health.

Two field units, consisting of a public health physician and a nurse, were assigned to this work by the Department. These units assisted local authorities in the educational program which was directed by the school officials. The units also aided in the organization of the clinics which were conducted by the local physicians.

The results of this program have been gratifying and have been due in major part to the excellent cooperation of those agencies which participated in the work as well as to the active interest of local physicians.

Table I shows the number of individuals given toxoid during the program. The figures given in this report are below the actual number receiving toxoid since clinic records were not returned in every instance.

Table II shows the additional work performed in the health officer counties as a result of a recheck of the unprotected children in those districts. Consequently, the 16,219 individuals listed in health districts represent only an addition to those who received toxoid during the routine programs carried out annually by all local health departments.

TABLE I

NUMBER OF INDIVIDUALS GIVEN TOXOID IN NON-HEALTH OFFICER COUNTIES, JANUARY THROUGH MARCH, 1939

County	*Number Given Toxoid*				*Total**
	White		*Colored*		
	Under 6 years	*6 years and older*	*Under 6 years*	*6 years and older*	
Accomac	192	574	278	870	2,399
Amelia	79	442	189	777	1,517
Amherst	160	592	142	634	2,333
Appomattox	124	151	91	222	604
Bath	187	612	23	104	978
Bedford	---	---	---	---	3,465
Bland	373	1,088	11	18	1,497
Campbell	86	341	271	412	1,513
Caroline	38	186	117	303	1,263
Carroll	354	700	8	28	1,114
Clarke	106	182	35	92	431
Craig	150	302	---	--	453
Culpeper	304	1,322	257	826	2,776
Cumberland	14	28	152	464	661
Floyd	102	61	---	---	163
Fluvanna	134	305	184	593	1,235
Frederick	176	348	22	31	578
Giles	448	1,571	28	103	2,183
Goochland	44	108	123	629	913
Grayson	341	697	20	53	1,148
Highland	103	183	4	8	298
Loudoun	54	315	11	42	422
Louisa	26	119	50	368	563
Powhatan	29	76	72	263	441

Roanoke	158	349	15	68	688
Smyth	805	2,756	64	240	3,967
Total	4,587	13,408	2,167	7,148	33,603
	(25.5%)	(74.5%)	(23.3%)	(76.7%)	
	17,995 (65.9%)		9,315 (34.1%)		

Total under 6 years 6,754 (24.7%)
Total 6 years and older 20,556 (75.3%)

*This also includes age and color unknown.

TABLE II

NUMBER OF INDIVIDUALS GIVEN TOXOID IN COUNTIES WITH FULL-TIME HEALTH SERVICE, JANUARY THROUGH MARCH, 1939

	Number Given Toxoid		
Health District	*Under 6 yrs.*	*6 yrs. and older*	*Total*
Albemarle	253	59	312
Alleghany-Botetourt	236	117	353
Arlington	107	150	257
Augusta	476	70	546
Brunswick-Greensville-Mecklenburg	228	130	358
Fairfax	69	83	152
Halifax	259	333	592
Hanover	101	76	177
Henrico	196	154	350
Isle of Wight-Nansemond	94	112	206
Norfolk-Princess Anne	779	604	1,383
Northampton	406	1,176	1,582
James City-Elizabeth City-Warwick-York	449	126	575
Pittsylvania	73	174	247
Prince William	12	0	12
Rockbridge	92	199	291
Southampton	45	38	83
Buckingham-Prince Edward-Nottoway	422	23	445
Sussex	147	47	194
Buchanan	104	97	201
Dickenson-Wise	192	146	338
Lee	799	452	1,251
Montgomery	199	147	346
Pulaski	280	2,173	2,453
Russell-Tazewell	692	486	1,178
Washington	272	694	966
Wythe	216	151	367
Greene-Madison-Page-Rappahannock-Rockingham-Shenandoah-Warren	327	311	638
Prince George	144	222	366
Total	7,669	8,550	16,219
	(47.3%)	(52.7%)	

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Gilliland Laboratories, Inc.

Tetanus Toxoid, Alum Precipitated (Refined)—Gilliland.

Bismuth Subsalicylate in Oil—Gilliland, 0.13 Gm. (2 grains) per cc.

Bismuth Subsalicylate in Oil—Gilliland, 0.2 Gm. (3 grains) per cc.

Lederle Laboratories, Inc.

Refined and Concentrated Antipneumococcic Serum, Type I—Lederle (packages of one vial containing 20,000 units and one vial containing 50,000 units).

Antipneumococcic Serum, Refined and Concentrated, Type II—Lederle (packages of one vial containing 20,000 units and one vial containing 50,000 units).

Bivalent Antipneumococcic Serum, Refined and Concentrated—Lederle (packages of one vial containing 20,000 units and one vial containing 50,000 units).

Antipneumococcic Serum, Types IV and VIII, Refined and Concentrated—Lederle (packages of one vial containing 50,000 units).

Antipneumococcic Serum, Types V and VII, Refined and Concentrated—Lederle (packages of one vial containing 50,000 units).

Dried Ferrous Sulfate Capsules, 0.33 Gm. (5 grains).

Eli Lilly & Company.

Ampoule Solution Liver Extract Purified—Lilly, 10 cc.

Propaganda for Reform

Effect of Sulfapyridine on the Urinary Trace.—A new complication associated with the administration of sulfapyridine has been reported (*The Journal,* May 6, 1939, p. 1820). Three cases of hematuria, abdominal pain and nitrogen retention were associated with the administration of this drug. None of the patients had shown evidence of urinary tract disease prior to the administration of the drug for pneumonia. In all instances the manifestations cleared promptly when sulfapyridine was stopped and adequate fluids were administered. Confirmatory evidence of an experimental nature is offered by the recently reported study of Antopol and Robinson (Proc. Soc. Exper. Biol. & Med., 40:428, March, 1939), who observed the formation of uroliths in the urinary tract of rats, rabbits and monkeys fed with sulfapyridine. A few hours after the oral administration of a large dose of sulfapyridine the urinary tract in susceptible animals contained needle-like crystals of the acetyl derivative of sulfapyridine. There is, it is pointed out, a suggestion that the crystalline compound, when not excessive, can either be redissolved or washed out. The uroliths consisting of this acetyl derivative permit penetration of X-rays, but it has been observed that calcium can be deposited about these concrements, in which case the shell may become radiopaque. The serious potentialities of this complication of sulfapyridine therapy necessitate careful observation in each case. (*J. A. M. A.,* May 6, 1939, p. 1834.)

Sulfanilamide and Smallpox.—In *The Journal,* May 13, 1939, p. 1936, appears a report of the treatment of four cases of smallpox with sulfanilamide. In three there was only an evanescent macular eruption which rapidly disappeared, and in the remaining case there were only three pustules. Three additional patients were treated only symptomatically and in all three the typical eruption of smallpox developed. However, because of the low case fatality rate of smallpox, conclusions as to the value of sulfanilamide in preventing mortality from this disease cannot be drawn from the four cases thus treated. (*J. A. M. A.,* May 13, 1939, p. 1971.)

Presidents and Places of Meetings of the Medical Society of Virginia

President	Place of Meeting	Year of Meeting
*Dr. R. S. Payne, Lynchburg	Richmond	1870
*Dr. R. S. Payne, Lynchburg	Lynchburg	1871
*Dr. A. M. Fauntleroy, Staunton	Staunton	1872
*Dr. Harvey Black, Blacksburg	Norfolk	1873
*Dr. A. G. Tebault, London Bridge	Abingdon	1874
*Dr. S. C. Gleaves, Wytheville	Richmond	1875
*Dr. F. D. Cunningham, Richmond	Charlottesville	1876
*Dr. J. L. Cabell, University	Petersburg	1877
*Dr. J. H. Claiborne, Petersburg	Richmond	1878
*Dr. L. S. Joynes, Richmond	Alexandria	1879
*Dr. Henry Latham, Lynchburg	Danville	1880
*Dr. Hunter McGuire, Richmond	Old Point Comfort	1881
*Dr. G. W. Semple, Hampton	Fauquier White Sulphur Springs	1882
*Dr. W. D. Cooper, Morrisville	Rockbridge Alum Springs	1883
*Dr. J. E. Chancellor, Charlottesville	Rawley Springs	1884
*Dr. S. K. Jackson, Norfolk	Alleghany Springs	1885
*Dr. Rawley W. Martin, Chatham	Fredericksburg	1886
*Dr. Bedford Brown, Alexandria	Richmond	1887
*Dr. Benjamin Blackford, Lynchburg	Norfolk	1888
*Dr. E. W. Row, Orange C. H.	Roanoke	1889
*Dr. Oscar Wiley, Salem	Rockbridge Alum Springs	1890
*Dr. W. W. Parker, Richmond	Lynchburg	1891
*Dr. H. Grey Latham, Lynchburg	Alleghany Springs	1892
*Dr. Herbert M. Nash, Norfolk	Charlottesville	1893
*Dr. Wm. P. McGuire, Winchester	Richmond	1894
*Dr. Robt. J. Preston, Abingdon	Wytheville	1895
*Dr. Wm. L. Robinson, Danville	Rockbridge Alum Springs	1896
*Dr. Geo. Ben Johnston, Richmond	Hot Springs	1897
*Dr. Lewis E. Harvie, Danville	Virginia Beach	1898
*Dr. Jacob Michaux, Richmond	Richmond	1899
*Dr. Hugh T. Nelson, Charlottesville	Charlottesville	1900
*Dr. J. R. Gildersleeve, Tazewell	Lynchburg	1901
*Dr. R. S. Martin, Stuart	Newport News	1902
*Dr. J. N. Upshur, Richmond	Roanoke	1903
*Dr. Joseph A. Gale, Roanoke	Richmond	1904
*Dr. Wm. S. Christian, Urbanna	Norfolk	1905
Dr. Lomax Gwathmey, Norfolk	Charlottesville	1906
Dr. Paul B. Barringer, Charlottesville	Chase City	1907
*Dr. Wm. F. Drewry, Petersburg	Richmond	1908
Dr. Stuart McGuire, Richmond	Roanoke	1909
*Dr. E. T. Brady, Abingdon	Norfolk	1910
*Dr. O. C. Wright, Jarratt	Richmond	1911
*Dr. Hugh M. Taylor, Richmond	Norfolk	1912
*Dr. Southgate Leigh, Norfolk	Lynchburg	1913
*Dr. Stephen Harnsberger, Catlett	Washington, D. C.	1914
*Dr. Samuel Lile, Lynchburg	Richmond	1915
Dr. Joseph A. White, Richmond	Norfolk	1916
Dr. Geo. A. Stover, South Boston	Roanoke	1917
*Dr. E. G. Williams, Richmond	Richmond	1919†
*Dr. Paulus A. Irving, Farmville	Petersburg	1920
*Dr. Alfred L. Gray, Richmond	Lynchburg	1921
*Dr. E. C. S. Taliaferro, Norfolk	Norfolk	1922
*Dr. John Staige Davis, University	Roanoke	1923
*Dr. W. W. Chaffin, Pulaski	Staunton	1924
Dr. Hunter H. McGuire, Winchester	Richmond	1925
Dr. W. L. Harris, Norfolk	Norfolk	1926
Dr. J. Shelton Horsley, Richmond	Petersburg	1927
Dr. J. W. Preston, Roanoke	Danville	1928
Dr. J. Bolling Jones, Petersburg	Charlottesville	1929
*Dr. Charles R. Grandy, Norfolk	Norfolk	1930
*Dr. J. Allison Hodges, Richmond	Roanoke	1931
Dr. I. C. Harrison, Danville	Richmond	1932
*Dr. J. C. Flippin, University	Lynchburg	1933
Dr. R. D. Bates, Newtown	Alexandria	1934
Dr. F. H. Smith, Abingdon	Norfolk	1935
Dr. P. St. L. Moncure, Norfolk	Staunton	1936
Dr. J. M. Hutcheson, Richmond	Roanoke	1937
Dr. G. F. Simpson, Purcellville	Danville	1938
Dr. Alex. F. Robertson, Jr., Staunton	Richmond	1939

*Deceased.
†Owing to influenza epidemic and World War, meeting not held in 1918, and Dr. Williams continued as President.

Reports for Seventieth Annual Session of the Medical Society of Virginia

The Council

The Council held a meeting on February 16, 1939, the minutes of which were published in the April, 1939, issue of the VIRGINIA MEDICAL MONTHLY, pages 241-243.

Report of Executive Secretary-Treasurer

TO MEMBERS OF THE HOUSE OF DELEGATES:

With the excellent work done by the Committees of the Society, the duties of the secretary's office are more or less of a cooperative nature, though a large amount of detail work has been accomplished.

At the meeting in 1938, we reported a membership of 1,855. During the past year, seventy-six have been admitted to membership, four of these being reinstatements and the remainder new members. In this time, our losses have been eighty-three, of which forty-two were by death, seventeen by resignation, and twenty-four for non-payment of dues, leaving a total of 1,848 members as of August 1, 1939.

There has been no change in the status of our component societies, there being forty-seven, representing ninety counties and one city. Early this year there was formed the James River Medical Society, and they asked what steps were necessary to obtain a charter from the State Society. This is composed of Buckingham and Cumberland, already chartered in the Fourth District Medical Society, and Fluvanna, an unchartered county. An explanation of the situation was sent the officers of the Society, but no steps could be taken to charter it without the consent of the Council.

In the Standing Committees, there have been two changes: Dr. C. C. Coleman, first appointed to membership on the Medical Economics Committee could not accept, and Dr. Carrington Williams was named in his place; the death of Dr. J. C. Flippin caused a vacancy in the Department of Clinical and Medical Education, which has not been filled. As explained in the minutes of the Council, the committee first named by the President as Advisory to the Virginia Cancer Foundation was enlarged and its name changed to the Cancer Committee.

In accordance with recommendation from the last House of Delegates, Governor Price announced the appointment of Dr. W. B. McIlwaine, of Petersburg, as a member of the Virginia State Board of Medical Examiners, to fill the unexpired term of Dr. Fletcher J. Wright.

Drs. Wright Clarkson and Walter B. Martin, regularly elected delegates, and Dr. Carrington Williams, alternate for Dr. J. C. Flippin, deceased, represented the Society at the St. Louis meeting of the American Medical Association.

In compliance with provisions of the Constitution and By-Laws of the U. S. Pharmacopoeial Convention, this Society has been invited to appoint three delegates and three alternates to the convention for the revision of the Pharmacopoeia, to meet in Washington, D. C., May 14, 1940.

The financial year closes on September 30th, so the auditor's report with detailed statement will appear with the minutes of the Richmond meeting. The year has been satisfactory financially, however. The Home Owners' and Loan Corporation bonds owned by the Society, with face value of $1.500, were in the series called at par on August 1st, and should be re-invested.

This report would be incomplete without a word of appreciation to all officers and individual members who have assisted in every way for the good of the Society.

AGNES V. EDWARDS,
Executive Secretary-Treasurer.

Report of Delegates to the American Medical Association

The meetings of the House of Delegates at the St. Louis session of 1939 were highly instructive and harmonious.

The subject of chief importance was the Wagner health bill. There were also many other topics discussed and acted upon, but space will not permit their being discussed here. We will, therefore, confine our remarks mainly to the Wagner bill and request those interested to read the full proceedings of the St. Louis session to be found on page 2158 of the May 27th issue of the *Journal of the American Medical Association.*

Everyone seemed opposed to the Wagner bill as it was drawn. Many delegates felt that it contained some good features, but the document was for the most part thought to be undesirable. The matter was referred to a reference committee who brought in a report strongly condemning the bill. The report was adopted without a dissenting vote, but many delegates, including the three from Virginia, feel that some substitute for the bill should have been recommended to Congress.

Thinking somewhat along this line one of your delegates (Martin) drafted some resolutions which may be found on page 2169 of the *Journal of the American Medical Association* of May 27th. These resolutions met with the approval of the other two delegates from Virginia and they were presented to the House.

The resolutions call attention to the fact that among the seriously sick the hospital costs constitute over half of the total costs of their illnesses and recommended:

1. Payment to the hospital by the government, local, state and federal, of the full cost of hospital care of all indigent patients.

2. Subsidy for the full hospital care of the low income group, this subsidy to be applied through local hospital service associations now existing or to be formed, so as to allow the sale of hospital service contracts at a reduced rate to the low income group below a certain fixed income level.

The resolutions were referred to the reference committee on Legislation and Public Relations. This committee was entirely sympathetic and agreed to the principles outlined. The committee sent a copy of the resolutions to the special reference committee then considering the Wagner bill but the Wagner bill committee made no mention of the resolutions in its report. We feel that this was an error on the part of the committee.

Your delegates and many others feel that while the Wagner bill in its present form should have been condemned, the time has now come to fight for certain constructive reforms, acceptable to organized medicine, which will more evenly distribute the cost and yet preserve the quality of medical care in America.

CARRINGTON WILLIAMS
WALTER B. MARTIN
WRIGHT CLARKSON
Chairman

Report of Committee on Publication and Program

This Committee has held two meetings during the year to discuss matters pertaining to the publication of the VIRGINIA MEDICAL MONTHLY and to prepare the program for the annual meeting.

No changes of importance have been made in regard to the official publication of the Society.

In response to a questionnaire sent members early in the year, we found there was a desire on the part of many for a larger number of invited speakers at our meetings, so we have met this request and made several changes in arrangement which we trust may increase interest.

H. A. TABB
J. EDWIN WOOD, JR.
WYNDHAM B. BLANTON
Chairman

Report of Committee on Scientific Exhibits and Clinics

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

It is a great pleasure and privilege to report that the Scientific Exhibits for this year far exceed our fondest expectations. At the present time, there are scheduled thirty-nine exhibits, five of which are demonstrative in character. The latter represents an innovation in our Society and are, we feel, very worthwhile.

In looking over past records, there has never been as large an exhibit as you will see in October and never before have we had such an ideal space in the same building with the meeting.

We sincerely hope that the entire society will encourage our exhibitors by visiting their exhibits and talking with them.

There is a greater and greater interest on the part of physicians towards scientific exhibits. It is a frequent occurrence to hear physicians express themselves as being more interested in the scientific exhibits at larger meetings than in the programs, as an opportunity is presented for those interested in the exhibit to talk with those who have the exhibits.

It is necessary in order to have worthwhile exhibits to have available larger funds than those given in the past. In order to care for the expense of setting up and tearing down booths, storage of material which is left over, having signs painted, caring for expenses of carpenters and electricians, and a huge amount of correspondence for an exhibit as large as we are having this year, we need about three times the allotment given.

We are grateful to Dr. Harvey Haag, local chairman, Dr. Roshier Miller and his various committees, Dr. Hugh Trout, our incoming president, and to Miss Edwards, all who lent valuable assistance.

W. R. ROGERS
STAIGE D. BLACKFORD
W. AMBROSE MCGEE
Chairman

Department of Clinical and Medical Education

This report covers the period from July 26, 1938, to July 31, 1939. The activities reported here deal with postgraduate courses in Pediatrics and Internal Medicine, postgraduate clinics held at the two medical colleges, a financial statement, and some miscellaneous items including suggestions for the coming year.

PEDIATRICS

Nearly every section of the State had been reached by the postgraduate courses in Pediatrics when Dr. Robert B. Hightower, Instructor in Pediatrics, resigned in February, 1939. During the period from August 1, 1938, to the time of his resignation, Dr. Hightower conducted three circuits in the western part of the State and spent the months of December, January, and February assisting in the diphtheria immunization program of the State Department of Health. The latter work was carried on in Pittsylvania, Bedford, Cumberland, Nelson, Fluvanna, Powhatan, Goochland, Appomattox, Campbell, and Amherst Counties. At the request of doctors in Giles County, Dr. Hightower spent an additional week in that county in November, 1938. A report on the three circuits conducted during the year follows:

AREA	CIRCUIT NUMBER	NUMBER ATTENDING	NUMBER MEETINGS	TOTAL ATTENDANCE	VISITS	CONSULTATIONS
Russell, Buchanan, Dickenson, Tazewell	XV	48	20	106	124	80
Bland, Floyd, Giles, Montgomery, Pulaski	XVI	45	20	135	137	66
Alleghany, Bath, Botetourt, Rockbridge	XVII	31	20	87	151	9
Summary		124	60	328	412	155

Since this concludes the formal programs in Pediatrics it may be well to summarize the work conducted by Dr. Arena and Dr. Hightower during 1936, 1937, and 1938.

Doctors enrolled in courses	683
Total Attendance	1,933
Consultations (at doctors' requests)	883
Office Visits	2,023
Per cent of all Virginia doctors reached	24

With the exception of a small area around Richmond and a few scattered counties in other sections of Virginia, the State was very fully covered.

INTERNAL MEDICINE

During the year 1938-1939 five postgraduate courses* in Internal Medicine were conducted at the request of local societies. Except in the case of the course at Wytheville, the local societies requested the courses without any direct suggestion from the Executive Secretary. The course at Wytheville was offered following a suggestion from the Executive Secretary to the Southwest Virginia Medical Association at its semi-annual meeting, at which meeting the suggestion was approved by the Association.

This course, for some unknown reason, was poorly attended and cannot be called successful. There was a rumor to the effect that the doctors objected to the $5 fee, but we have been unable to verify this or ascertain the real cause of failure in spite of inquiries.

Five doctors enrolled and attended most of the meetings.

At the request of the Alexandria Medical Society, a program was offered in Alexandria during February and March, 1939.

Arrangements for this course were made by a committee from the Alexandria Medical Society, of which Dr. H. W. Wolff was chairman. This committee collected all fees, paid expenses of speakers, and had a small surplus left over to apply on the purchase of a balopticon for the Society. There was an enrollment of thirty-eight doctors and an average attendance of twenty-four for the six meetings.

A course was offered at Martinsville during March and April.

Dr. R. H. Walker, Secretary of the Patrick-Henry Medical Society, made local arrangements for the course. There were eighteen doctors who attended one or more meetings. The average attendance was fifteen. The Secretary made the following comments in reporting on the course:

"Those attending the meetings were enthusiastic, and all felt they were very worth while and are grateful for the opportunity of attending them.

"Again let me thank you for arranging a course which I feel was stimulating and beneficial to all those attending. I feel that the State Society is doing a very valuable piece of work in promoting these courses."

The most extensive course of the year was held in Lynchburg during the period from April 7th to June 9th.

*Programs for all courses appeared in current issues of the VIRGINIA MEDICAL MONTHLY.

There were forty-eight doctors attending one or more of the discussions, and the average attendance was twenty-four. Due to the fact that the course was spread over a long period of time during which some of the doctors were out of town for short periods, it was decided to set a fee of $7.50 for those who attended the entire course and a smaller fee of $5 for those attending a limited number of meetings. Local arrangements were made by a committee consisting of Dr. Ernest G. Scott, Chairman, Dr. David P. Scott, and Dr. John Hundley.

The newly-formed James River Medical Society requested a course which was offered in May and June at Arvonia.

Since the membership of this Society, which is drawn from Buckingham, Fluvanna, and Cumberland Counties, is small and consists of only about twelve doctors, the enrollment of nine represented a large percentage of the membership. The Secretary, Dr. E. J. Haden, who made local arrangements made the following report on the course:

"Our group of doctors feel that the postgraduate course was the most valuable work we have had in a long time. The attendance was excellent. Dr. Glover missed one meeting due to sickness. I missed one when I was out of town. Dr. Haynesworth, due to the illness of his wife, was unable to attend any of the meetings. I believe with these exceptions the attendance was 100 per cent."

In arranging for courses in Internal Medicine an attempt was made to have a lantern or moving picture projector provided for the use of the lecturer when needed. Following each discussion the committees were requested to provide clinical cases if possible. When cases were not available doctors were requested to present several case histories in detail bearing on the topic discussed. Round table discussion was provided in each case.

While no extensive survey through questionnaires was made to ascertain the reaction of doctors attending these courses, the reports from the local secretaries and the sustained attendance lead us to believe that they were considered very much worth while.

SUMMARY OF ATTENDANCE

Locality	Number Meetings or Discussions	Number Doctors Attending One or More Times	Total Attendance	Average Attendance
Wytheville	2*	5	9	4.5
Alexandria	6	38	144	24
Martinsville	5	38	120	24
Lynchburg	10	48	238	23.8
Arvonia	5*	9	43	8.6
Totals	28	138	554	19.8

*At Wytheville and Arvonia two discussions were held at each meeting.

MEDICAL SCHOOL CLINICS

The attendance and programs of the postgraduate clinics held by the medical colleges have been reported in the January, April, and June issues of the VIRGINIA MEDICAL MONTHLY. The attendance at each was as follows:

MEDICAL COLLEGE OF VIRGINIA

McGuire Clinics and Postgraduate Lectures, April, 1939	30

UNIVERSITY OF VIRGINIA

Twenty-second Clinic, December, 1938	59
Twenty-third Clinic, May, 1939	72
Total Attendance	161

For the coming year it is proposed that courses in Internal Medicine be continued on the same plan as in the past. A letter from the chairman of the Department or the president of the Society might appropriately go to each local society calling attention to the opportunity for arranging short courses upon request of the local society. Through some means an effort should also be made to determine what other phases of postgraduate medical instruction the doctors of the State wish treated through short courses.

SUMMARY OF ACTIVITIES
POSTGRADUATE COURSES

COURSES	CIRCUITS	NUMBER ATTENDING	NUMBER MEETINGS	TOTAL ATTENDANCE	VISITS	CONSULTATIONS
Pediatrics	3	124	60	328	412	155
Internal Medicine	5	138	28	554	---	---
Medical School Clinics		161	3	161	--	--
Totals	8	423	91	1,043	412	155

ST. LOUIS EXHIBIT OF THE AMERICAN MEDICAL ASSOCIATION

At the request of the American Medical Association an exhibit of the work of the Department of Clinical and Medical Education was prepared and shown at the St. Louis meeting in April, 1939. This exhibit included charts showing the organization, history, financial arrangements, and the program of the Department. In addition were shown photographs of instructors and classes as well as copies of lectures and other printed materials. Dr. E. L. Alexander, of Newport News, very kindly installed and attended the exhibit. He reports that it was well received and excited the interest of numerous doctors at the meeting. A number of requests for information and materials have been received by the Executive Secretary as a result of the exhibit.

SUGGESTIONS

As a result of the past year's experience it is believed that there will be a continuous demand from local societies for frequent short postgraduate courses covering different phases of medical theory and practice. It is recommended, therefore, that the Medical Society of Virginia be requested to continue its annual appropriation of $750 in addition to the unexpended balance remaining on hand at the time of this report.

It will be recalled that the Department of Clinical and Medical Education something over a year ago requested the cooperation of the Medical College of Virginia and the University of Virginia Medical School in its program of postgraduate medical instruction through furnishing instructors from their faculties. These institutions have responded generously and deserve the thanks of the Department for the splendid help they have given. This has placed an extra burden upon faculty members who already have full teaching loads. Some thought should be given to cooperation in relieving this situation through a concerted appeal for a State appropriation or other means to provide additions to the medical school faculties for postgraduate instruction.

In view of the fact that materials were assembled for the St. Louis meeting showing the work of the Department of Clinical and Medical Education, consideration might well be given to showing this same exhibit at the annual meeting of the Medical Society of Virginia this fall.

G. F. SIMPSON
Chairman
GEORGE B. ZEHMER
Executive Secretary

FINANCIAL STATEMENT
DEPARTMENT OF CLINICAL AND MEDICAL EDUCATION

July 27, 1938, to July 31, 1939

RECEIPTS:		
Balance on hand, July 27, 1938	$511.83	
Received from fees	461.62	
Received from Medical Society of Virginia, December, 1938	600.00	
Received from Medical Society of Virginia (August 10, 1939)	625.76	
Total Receipts		$2,199.21
DISBURSEMENTS:		
Wages and Salaries	$598.00	
Travel	319.87	
Printing	74.95	
Communications—Telephone and Telegraph	24.72	
Postage	50.21	
Refund of balance to Medical Society of Virginia, August, 1938	475.76	
Miscellaneous	35.49	
Total Disbursements to July 31, 1939		$1,579.00
Balance to be refunded to Medical Society of Virginia		$ 620.21

Report of Legislative Committee

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

As the past year was not a legislative one, this Committee has no special report to make. Communications referred to the Committee, however, were handled promptly and apparently satisfactorily.

J. K. HALL
J. D. WILLIS
H. U. STEPHENSON
Chairman

Report of the Committee on Medical Economics

Your Committee has considered during the past year a number of important matters and submits the following report:

STUDY OF THE NEED AND THE SUPPLY OF MEDICAL CARE IN VIRGINIA

The House of Delegates of this Society endorsed the plan of the American Medical Association for a study of the need and the supply of medical care. This Committee was charged with the responsibility of receiving and correlating the data from the various component societies. This task has been a difficult and unsatisfactory one. Replies were received from about one-fourth of the cities and counties in the State, representing a population coverage of about 900,000. With a few notable exceptions, these reports were fragmentary and incomplete. Of 890 physicians in the area reporting who received questionnaires only 180, or twenty per cent, replied. Approximately the same ratio of questionnaires to replies prevailed among hospitals, pharmacists, welfare departments, health departments, and schools. It is obvious that with such meager data statistical treatment is impossible. A review of the replies and comments, however, allows certain general comments on the trend of opinion.

The general view prevails that the indigent are reasonably well provided for and there were very few instances reported where medical care was needed and had not been supplied. The quality and quantity of the care furnished the indigent on the whole compared favorably with that received by other population groups. The indigent appear somewhat better provided for in the cities than in the rural areas, due largely to better hospital facilities in the larger centers. It is felt, however, that there is need of definite improvement in the completeness of the medical service rendered the indigent, especially in the rural areas.

The rate of hospitalization of the indigent in five cities and counties studied exceeded the general rate for the population. In this group of cities and counties with a population of 474,000 there were 91,051 free hospital days recorded. Allowing for a hospitalization rate of three-fourths of a day per person, the total number of hospital days for the population in the area studied would be 355,000 days. The free days are therefore slightly over twenty-five per cent of this total. Since it cannot be seriously maintained that twenty-five per cent of the population is indigent, it appears that this group is better provided with hospital care than the average population. The quality of the hospital and the professional care received by the indigent compares favorably with similar service received by the pay group. It is to be noted that the care of these patients represents a loss to the hospital of approximately $300,000.00, not allowing anything for the cost of professional care.

The impression is gathered from these records and comments that the plight of the low income group is much worse than that of the indigent and that much of the criticism of present medical practice originates in this group. It seems evident that people of small income cannot meet the cost of severe illness without incurring a burden that is insupportable. It is doubted that they could meet the average cost and, since there is no way of providing good medicine cheaply, we are faced with the necessity of either subsidizing the care of the low income group or providing them with an inferior or incomplete service. The opinion was repeatedly expressed that the members of this group received adequate care as far as it could be furnished by individual practicing physicians, but that the completeness of their care was limited by their inability to meet the expense of hospital care and of costly drugs, biologicals, appliances, and diagnostic procedures.

There was little complaint of a lack of hospital facilities for the indigent, although it was recognized that the quality of hospital service, especially in the smaller towns, could be greatly improved if the hospitals had more adequate financial support. Non-profit hospital service plans received unanimous endorsement and there were numerous suggestions that similar provisions should be worked out to provide medical care for the low income group. No one, however, had any practical plan or suggestion as to how this might be done.

The effect of economic conditions in initiating and perpetuating disease was strongly stressed and one comment was so clearly and strikingly stated that it is worth recording.

"Our need is not for more facilities nor to provide more physicians to bring this care to the patient, but for increased wages to workers which will allow a minimum budget for medical care. We have no difficulty in getting physicians to diagnose disease or to attempt treatment, but it is very difficult to make an adequate physical examination, to provide necessary laboratory examinations, and, having made a diagnosis, to institute the proper treatment when the patient concerned has neither food in the house nor clothes to wear."

Certainly it should be constantly emphasized that, whereas remediable disabilities may be the cause of a certain part of the relief load, to a far greater degree poverty is a cause of disease and probably a still greater factor in delaying or preventing recovery from disease.

Summary:

An analysis of the survey of the need and the supply of medical care in Virginia indicates that:

1. The medical needs of the indigent are reasonably well covered and in the amount of hospital care they apparently exceed any other population group.

2. The low income group is cared for as far as general medical attention but the economic factor seriously interferes with complete care, including hospital service, diagnostic procedure, and special therapy.

3. Hospitals are overburdened with the care of the indigent and the low income group and should be subsidized in an amount adequate to meet the cost of this service. This would allow an orderly and progressive extension of hospital facilities.

4. Non-profit hospital service plans are proving to be of benefit to the hospitals and the low income group and should be extended as rapidly as possible.

5. Poverty and the resulting inadequate food, shelter, and clothing are potent factors in producing, prolonging, and perpetuating disease and disease conditions.

Action of the House of Delegates of the American Medical Association on the Wagner Bill

We have studied carefully the report of the Reference Committee of the House of Delegates of the American Medical Association on the Wagner National Health Bill as adopted by the House of Delegates of the American Medical Association. (*Journal of the A. M. A.*, June 3, 1939, p. 2295.) This Committee, quite properly we think, did not confine its statements and conclusions to the Wagner Bill alone, but touched on the general problem of medical care for the indigent and the medically needy.

We are in substantial agreement with the Committee in its analysis of the objections to the Wagner Bill. Elsewhere in our report we have stated our own objections. We concur, also, in its opposition to federal control of health projects and to the use of federal subsidy to force upon the several states an undesired and undesirable system of medicine.

We feel, however, that the time has arrived for the House of Delegates of the American Medical Association, acting through its duly constituted executive agents, to formulate and advocate an alternative program to the one that has been so justly condemned. The Committee's report fails in this regard and makes only certain rather vague and indefinite recommendations bearing on the question of federal subsidy.

Report of This Committee on the Wagner Bill

Your Committee considered at some length Senate bill No. 1620, otherwise known as the Wagner Bill. While it seemed probable at that time, due to a number of factors, that the bill would not become a law, it was thought wise to analyze its provisions and to report to you the Committee's findings and recommendations.

This bill is probably a fair example of the end-product of the mass thinking by the interdepartmental committees, and future bills will, no doubt, be fashioned along the same general lines. This Committee is in sympathy with the main objectives set forth in the bill. We believe that the medical profession as a whole shares with us the desire to have the American people provided with the best medical care available. We feel, however, that it is of extraordinary importance that any plan proposed be carefully scrutinized, to the end that the service provided be adequate and the public resources be conserved.

The bill proposes the expenditure of approximately $100,000,000 the first year, increasing to a minimum of $275,000,000 the third year. The exact amount for the third year cannot be predicted. The money is to be expended for the following six purposes:

1. National and child health service.
2. Medical service for children and service for crippled children and other physically handicapped children.
3. Public health work and investigation.
4. Grants to states for hospitals and health centers.
5. Grants to states for medical care.
6. Grants for temporary disability compensation.

The first two of these come under the direction of the Children's Bureau of the Department of Labor. Items three and four are placed under the Surgeon-General of the Public Health Service in the Treasury Department, while the last two are controlled by the Chairman of the Social Security Board.

We are opposed to the Wagner Bill for the following specific reasons:

1. Each of these separate agencies will have its own administrative cost and is authorized to formulate and fix its own standards. According to the proposed law each state must conform to these regulations in order to benefit under the Act. The standards set up by the different departments may vary widely. On the one hand, the states are directed to form organizations in accordance with the standards set up by the different federal agencies and, on the other hand, they are required to coordinate all state agencies in the health field. The possibilities of confusion, inefficiency and waste are unlimited.

We, therefore, condemn that feature of the bill which provides for multiple agencies to set standards, determine allotments, and administer grants for medical care.

We recommend consolidation of all health agencies operated by the federal government, except those of the army and navy, under one head, either under the Public Health Service as now constituted or under a Department of Public Health to be created.

2. In the event the federal grants for medical care are made and accepted by the states, it is of first importance to determine how and by what agencies the joint state and federal funds are to be administered. The Wagner Bill provides that in some instances the administration shall be by the State Department of Health, while in others the administrative agency is not specified and the way is left open for non-medical organizations to handle these funds.

We recommend that all such funds be administered under the State Department of Health. We further recommend that the Advisory Board to the Commissioner of Health be put on a more definite basis. We feel that the Board should have a legal status and should be vested with certain authority in connection with the development of state plans and the expenditure of state and federal funds for health purposes. This Board should be so constituted that enlightened medical opinion may have a predominant influence in formulating plans for medical care within the state. We suggest that such a Board might be made up of the President and the President-elect of the Virginia State Medical Society and the State Director of Public Welfare.

3. We have noted that nowhere in this bill is there any

limit set or economic level established in respect to the recipients of benefits under these plans.

We recommend that the service rendered under these various proposals be limited to indigents and to the medically needy, and that such provisions be made in any bill looking toward any form of medical care or health service, except as related to purely public health measures.

4. We have been impressed, in considering this bill, by the entire absence of any provision for control or direction of any of these health measures by experts in the medical field, except in those instances where the Public Health Service is given direction. Provision is made in each of the six projects for state and federal advisory boards. These boards as proposed would contain a minority only of physicians. Furthermore, these boards would act only in an advisory capacity and would be entirely lacking in any authority. Final decision as to standard of service, training of personnel, allotment of funds, and all matters of organization would rest with the department heads in Washington.

We recommend changes in this feature of the bill to the end that expert professional direction and control in all health matters be provided, not only in the federal organization but in the state and local divisions as well.

5. We further recommend that these statements and recommendations be approved by the State Society and that copies be forwarded to our representatives in Congress, requesting that they endeavor to amend any proposed health bill in accordance with the spirit of these recommendations.

Proposal Concerning Hospital Care of the Indigent and the Low Income Group

The foregoing statements are not made in a spirit of destructive criticism nor is it our desire to obstruct any sound and properly safeguarded plan for extending good medical care to all the people. For this reason we feel obligated to set forth our own conception as to how government—local, state, and federal—may best aid in extending medical care to the indigent and to the low income group. We are, therefore, moved to submit for your consideration the following proposal:

It might be well to point out that the mounting cost of medical care is not primarily due to increased fees received by physicians, but is largely the result of steadily rising expenditures necessary to make available to everyone all of the appliances of modern medical science. Individual physicians have been under the necessity of greatly increasing their office overhead so as to be prepared to render their patients the service that modern medicine has made possible. The hospitals constitute centers where all of these accessories of medicine are made available. This has resulted in a great increase in hospital cost. Furthermore, the hospitals have been forced to care for a very large number of indigent patients either without charge or for a fee much below the cost of the service rendered. They have also taken care of the low income group at a distinct loss either from uncollectable accounts or from reduced charges. The hospitals, in order to survive, have been forced to increase their charges to patients who pay their way or to reduce the quality of the service rendered. We believe that, if the hospitals were paid on a basis of actual cost for the care of the indigent and were subsidized to an extent that would allow the hospitalization of the low income group for smaller fees, a large part of the problem of medical care would be solved.

We believe it is possible to subsidize these accessories of medicine without seriously disturbing our present system of medical practice. We further believe that the first step in accomplishing this end would be to provide for payment to the hospitals, by the local, state, and federal governments, of the full cost of hospital care of the indigent and part payment by the same government units of the cost of hospital care of the low income group. The main advantages of such a plan are as follows:

1. Increased bed occupancy on a pay basis and full utilization of existing facilities.
2. Increased income, enabling the hospitals to
   a. Lower rates to patients who pay their own way.
   b. Improve their service and facilities.
   c. Set up reserves for needed expansion.
3. Make possible the establishment of new hospitals in areas where the medical need exists, but where, heretofore, they have not been economically feasible.
4. Improve the standards and quality of hospital service. Since payment would be made on the basis of hospital cost, and since the cost would vary with the quality of service rendered, there would be a constant incentive to improve facilities and service, and thus become eligible to enter a higher income bracket.
5. Make possible the improvement of out-patient service for the ambulatory indigent, and the establishment of such service where it does not now exist.
6. Average the principal items of cost in severe illness and reduce the premium that the individuals in the low income group will pay on a hospital service contract to approximately $3.00 to $5.00 per year.

In support of these views we, therefore, submit the following resolutions:

Be It Resolved, that we advocate the following plan as the first step in extending more and better medical care to the indigent and the medically needy on a sound professional and economical basis:

1. Payment to the hospital by the government—local, state, and federal—of the full cost of hospital care of all indigent patients, the primary responsibility to rest with the local government.

2. Subsidy for the full hospital care of the low income group, this subsidy to be applied through local hospital service associations now existing or to be formed, so as to allow the sale of hospital service contracts at a reduced rate to the low income group below a fixed income level.

Be It Further Resolved,

1. That our delegates to the American Medical Association be instructed to introduce these or similar resolutions in the House of Delegates of the American Medical

Association and to use every proper endeavor for their adoption.

2. That we authorize our Committee on Medical Economics, in conference with our delegates to the American Medical Association and with the President and President-elect of this Society, to formulate such resolutions and to take such action as they may deem necessary in the furtherance of this purpose during the intervals between meetings of this House or of the Council.

3. That we authorize the Committee on Medical Economics, with the approval of the Council and in cooperation with the Legislative Committee, to submit to the next meeting of the State Legislature proposals designed to secure legislative action making effective these plans.

4. That we forward copies of these recommendations, together with such explanatory material as may seem wise, to our representatives in the Congress of the United States, to the Board of Trustees of the American Medical Association, and to the secretaries of each of the state medical societies.

5. That we request the various state medical societies to take action on these or similar resolutions prior to the next meeting of the House of Delegates of the American Medical Association.

NON-PROFIT ASSOCIATIONS FOR FURNISHING MEDICAL CARE TO THE LOW INCOME GROUP

The success of non-profit hospital service associations in the field of hospital care has stimulated interest in the possibility of a plan or plans for furnishing medical service to the low income group on somewhat the same basis. While there are many difficulties in the way, we believe the matter deserves thorough study.

We recommend, therefore, that the Medical Economics Committee take this question immediately under consideration and that it develop a plan for furnishing group medical care to the low income group, if in the judgment of the Committee this seems wise and expedient. We further recommend that the Council of the Society be authorized to accept or reject such a plan if formulated and presented to the Council prior to the next meeting of the House of Delegates.

GUY FISHER
JOHN A. GIBSON
JOHN HUNDLEY, JR.
CHARLES F. KINCHELOE, JR.
CARRINGTON WILLIAMS
WALTER B. MARTIN
Chairman

Report of Membership Committee

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

No applications for membership from those not members of a component society have been referred to this committee during the past year.

So far as information has been obtained, obituary notices of deceased members have appeared from time to time in the pages of the VIRGINIA MEDICAL MONTHLY.

A privilege of the committee is to make recommendations for honorary membership and it is a pleasure to ask that this be conferred upon our President, Dr. Alexander F. Robertson, Jr., for his most excellent work in behalf of our organization.

J. BOLLING JONES
D. M. KIPPS
J. A. WHITE
Chairman

Report of Committee on Ethics

TO THE PRESIDENT AND MEMBERS OF THE HOUSE OF DELEGATES:

The Ethics Committee begs leave to report on the two questions referred to it for consideration during the past year by the President through the Secretary of the Society.

First:

An opinion was requested regarding the Principles of Medical Ethics for a physician to address professional announcements to individual laymen.

According to the Constitution and By-Laws of the Medical Society of Virginia the ethics of the American Medical Association shall govern the ethics of this Society.

In Principles of Medical Ethics of the American Medical Association you will find on pages 7 and 8 a section pertaining to advertising and professional announcements. From this section it seems that for a physician to address announcements to individual laymen is not in accord with the principles of Medical Ethics.

Second:

This is a question of admitting to membership in the Arlington County Medical Society a physician they did not think showed evidence of a satisfactory medical training.

Article II, Section 4 of the By-Laws of the Medical Society says, "Each component society shall judge the qualifications of its own members." According to this section the Arlington County Medical Society was within its rights to reject him for membership in their Society. It seems this matter need not have been reported to the State Society for consideration as it had been properly settled by the component society.

Also the Secretary of the Arlington County Medical Society sent to the Medical Society of Virginia copy of a letter (this letter will be read at the State meeting) sent to each member of the State Board of the Medical Examiners of Virginia. The letter to the Medical Society says in part as follows: "We wish also to go on record most emphatically in condemning the action of the State Board of Medical Examiners in allowing physicians of inferior training to be examined and issued a license to practice medicine in this State. Furthermore, it might be of interest to the State Society to know that as a result of the laxity of the State Board of Medical Examiners many persons of questionable professional attainments are now making every effort to move into our section, which as you know, is close to Washington."

The Board of Medical Examiners is not responsible

to the Medical Society of Virginia for its actions. This Board is set up and governed by the Medical Practice Act of Virginia. It would appear this law gives the Virginia State Board of Medical Examiners certain wide and discretionary powers. However, the Ethics Committee feels that the Board should admit only those physicians who are adequately prepared. And because of the fact that the members of the State Examining Board are recommended for appointment to the Governor by this Society we concur in the opinion of Dr. Olin West who says, "I think it is quite within the duty of the Medical Society of Virginia to confer with the Virginia State Board of Medical Examiners with respect to these questions and I have no doubt that the members of that Board will be glad to receive any suggestions which the proper official bodies of the Medical Society of Virginia may offer."

The only other way your Committee sees to remedy this condition would be amending the present Medical Practice Act by legislative enactment.

JAS. R. GORMAN
G. H. CARTER
W. D. KENDIG
Chairman.

Report of the Advisory Board to the Woman's Auxiliary

The Staff of the Woman's Auxiliary is so well grounded in its work, and so full of new and progressive ideas, that little is left for the Advisory Committee to do in the way of advice—it is more a matter of commending them for what they are doing.

Take up any medical journal, State or National, and turn to the section on activities of the Woman's Auxiliary and read what the women are doing—not only for the medical societies, but for humanity in general. They are on the job all the year round.

We cannot go into detail as to the amount of work done by the various chapters for the benefit of hospitals, societies, clinics, and schools; but they are now active in aiding the physicians in building up medical libraries for hospitals and medical societies. Another feature for which they should be commended is social entertainment—the esthetic side of life, including music, art, literature—especially historical medical literature; and, last but not least, the question of Socialized Medicine—State and Federal.

Since the question of State and Federal Medicine has become such a vital one throughout the country, and since we are so dependent on our Auxiliary to help us out in every big fight, it would be well for us, the Medical Society of Virginia, to lay down the purposes, principles, and code of ethics of our fraternity plain and true, so that they may be understood by all; and invoke the aid of our Woman's Auxiliary to assist us in defending them before any legislative or other body.

HAWES CAMPBELL
J. B. STONE
P. ST. L. MONCURE
Chairman

Report of the Child Welfare Committee

The Child Welfare Committee respectfully submits the following report.

Changes in the Child Welfare situation in Virginia during the past year have not been great. There is, however, a gradual improvement along several lines.

TUBERCULOSIS

Tuberculosis continues to yield slowly to the unrelenting war against it. Deaths from this disease have fallen from 1,948 in 1934 to 1,809 in 1938. The rates for whites from 50.4 in 1934 to 47.5 in 1938; for colored from 161.7 in 1934 to 144.2 in 1938,—the totals for white and colored from 79.6 in 1934 to 73.2 in 1938, the rate for colored being about three times that for whites. The mortality for children under fifteen years of age for the past three years was as follows:

1936—white	43;	colored 84;	total 127
1937—white	31;	colored 59;	total 90
1938—white	31;	colored 67;	total 98

There are now in Virginia about 1,200 beds for the care of the tuberculous. Under the rebuilding plan of the State Health Department there will be about three hundred additional beds. For the first time in the history of the State there will be provided at Piedmont Sanatorium thirty beds for the care of colored children. This will mark a much needed *beginning* of adequate care for colored children. There are already forty beds at Blue Ridge for white children.

At the Richmond Sanatorium, Pine Camp, there are fifty beds for white children and fourteen for colored. At Hill Top, in Danville, there are twenty-six beds for children.

In a survey in Northumberland County in 1938, sponsored by the State Department of Health and the Northumberland Maternal and Child Health Demonstration Unit, under the direction of Dr. E. C. Harper, thirty-five pre-school children, 622 grade school children, 193 high school children, twenty-one teachers and twenty others were examined; 430 of these were white, 461 colored. Old tuberculin and the patch test were used. The dosage of tuberculin was .01 mg. to 1. mg.

Actually, 1,029 persons were tested and offered X-ray examination. Seven hundred and sixty-seven, or 74.5 per cent positive reactors were found by the intradermal tests, and 168, or 26.1 per cent by the patch test. Eight hundred and ninety-one X-ray plates were secured. Eight cases of the adult form of tuberculosis were found; four were said to be clinically active, thirty-three in need of hospital supervision, six were considered arrested; one only was regarded as of the childhood type, and twenty-nine were regarded as suspicious. The "rapid-paper" method was used for the X-ray studies.

During the year July 1, 1938, to June 30, 1939, seventy-three tuberculin—X-ray clinics for children were held: 2,675 white and 1,426 colored—a total of 4,101 children were examined. Two thousand eight hundred and fifty-two white, 1,519 colored and 324 race not given, a total of 4,695 children, were given tuberculin test. The number of positive reactors were 1,193 white, 613 colored, and 110 race not given, a total of 1,916.

The number of X-ray plates were: white, 2,128; colored, 1,086, a total of 3,214. Two mobile X-ray units are now in operation, and two clinics are scheduled each week for adults and children. Prior to September, 1938, there was only one X-ray unit in operation.

DIPHTHERIA

On November 10, 1938, at the request of Dr. I. C. Riggin, State Health Commissioner, your Committee and representatives of the Department of Health at Richmond met with Dr. Riggin to consider the increased number of cases of diphtheria being reported from various parts of the State, 207 more cases having been reported during the months of July, August, September and October than during the corresponding period of the year before. As a result of that conference it was though best to conduct a State-wide campaign against diphtheria. Such a campaign was promptly organized in twenty-four non-Health Officer Counties with the active assistance of Drs. L. L. Shamburger and Robt. B. Hightower, and in the forty-seven counties with full-time Health Officers; 32,062 individuals in the former and 16,219 in the latter, a total of 48,281 persons received the toxoid.

The reason for the greater proportion of inoculations in the non-Health Officer Counties is presumably because so many more children in those counties had not been previously inoculated. Twenty-five per cent of those receiving the toxoid in the non-Health Officer Counties were under six years of age, whereas in the Health Officer Counties 47.3 per cent were under six.

The work was done through the cooperation of the State and local health organizations, school officials and private physicians. The members of the Committee feel that the above described undertaking fulfills the best tradition of public health service. Private physicians played a large part in its consummation. Free distribution of toxoid to physicians for use among the indigent has not yet been provided. The Committee would urge the continued active support of private physicians in inoculating children against diphtheria.

The State Health Department is to be congraluated on resuming the "Diphtheria Reply Card"—a card to the parents concerning immunization of the infant against diphtheria at the age of six months, asking if the immunization has been done, and "if not, why not".

It is interesting to observe that there were only thirty-three more deaths in 1938 than in 1937 when eighty-one deaths were recorded, an all time low for Virginia.

The number of deaths from diphtheria in Virginia has ranged from 238 in 1935 to 114 in 1938. This speaks volumes for the efficacy of toxoid inoculations. It is believed that at least 50 per cent of the children of Virginia who are under Health Unit supervision have received preventive inoculation. Forty-seven counties are under such supervision. It is estimated that 78 per cent of the cases of diphtheria occur among those who have received no immunization. It is the consensus among those who have studied the subject that a single dose of alum precipitated toxoid is not adequate for immunization. Two or three doses will give a higher degree of immunity. Immunization should be followed in three to six months by the Schick test.

The continued high death rate from whooping cough among infants and young children impels the Committee to urge preventive inoculation in children under six years of age, employing the Sauer vaccine until a better method is available.

CRIPPLED CHILDREN

Virginia has a very satisfactory arrangement for the care of her crippled children. Provision has been made for the registration of every crippled child in the State. Those who are financially unable to secure adequate surgical or orthopedic care may be provided such care on application to the proper authority. Last year $147,000 was spent for the care of crippled children.

THE BLIND

Efforts at conservation of sight in indigent school children continue to be handicapped by insufficient funds. Additional appropriations for extension of this work are urgently needed. At least $5,000 should be provided for an additional ophthalmologist and an additional nurse.

THE PARTIALLY DEAF

Funds for adequate aid to partially deaf indigent children are also much needed. Defective hearing constitutes a major handicap to any school child. Audiometers for use in the schools and special provision for those with partial deafness will do much to lighten the burden of those so afflicted. It is the feeling of the Committee that these should not be longer delayed.

Dr. Sidney B. Hall of the State Department of Education is planning to include in his budget this year the sum of $300,000 for special classes for those physically or mentally handicapped. Of this amount a part will be set aside for the purpose of detecting partial deafness in the State's school population. The Legislature last year set aside $75,000 for this purpose but the sum was not sufficient to meet the need, hence the larger request in the 1939-40 budget.

MATERNAL AND CHILD HEALTH WORK

The Bureau of Maternal and Child Health under the direction of Dr. B. B. Bagby and his able assistant, Dr. A. L. Carson, Jr., extended its work during the year ending June 30, 1939.

Clinics were operated in twenty-nine Health Districts with full-time Health Officers. These Health Districts comprised forty-seven counties and eight principal cities of the State. There are twenty-eight established Well-Baby Clinics; fifty-nine Prenatal—Well-Baby Clinics, and eighty-six Prenatal—Postnatal Clinics.

In the counties, there were 7,058 white clinic visits and 9,643 colored—a total of 16,701 clinic visits. Of this total 4,296 were for pre-school children; 4,217 for well babies; 1,329 postnatal and 6,859 prenatal visits. For the preceding year there was a total of 8,139 visits. It is thus seen

that this type of work was more than doubled during the past year.

In the cities, there were 23,016 white clinic visits and 26,987 colored, a total of 50,003,—a grand total of 65,984 clinic visits for the year 1938-39. The total for 1937-38 was 37,448.

During the past year there was expended approximately $457,000 for rural health service in the State—$193,000 by the Federal government, $98,000 by the State, and $166,000 by local agencies. This was for work in forty-seven counties, about 56 per cent of the State's population. Dr. I. C. Riggin, State Health Commissioner, will ask an additional amount of the next Legislature for expansion of rural health activities and for maternal and child health service.

Five thousand dollars was provided this past year for anti-luetic drugs for indigent mothers. Also a revised copy was prepared of "The Baby", a pamphlet issued to mothers with advice as to the care of infants and older children. Your Committee aided in this revision.

MENTAL HYGIENE

Plans of the State Board of Public Welfare for expansion of its Mental Hygiene program were discussed with the Director, Dr. Wm. H. Stauffer, and with the Director of the Bureau of Mental Hygiene, Dr. J. N. Williams. The program sponsored by Dr. Stauffer and his department provides for a minimum outlay for a reasonably adequate program along preventive lines at this stage of the development of Mental Hygiene. It provides for two full-time traveling clinics which will deal not only with the feebleminded, but also with the general problem of nervous and mental disorders. Because of the volume of work to be done, the Clinics at present operating in the State can do little in the correction of functional nervous and mental disorders. The present facilities are totally inadequate, though the Clinics conducted in various parts of the State have served a two-fold purpose: first, that of helping a small group of individuals; second, that of furnishing a demonstration of what might be accomplished if regular visits of the Clinic could be provided.

The Clinics would be educational in nature as well as preventive and corrective. Their program would find application in advice to maladjusted children, especially with reference to a more adequate curriculum and also along lines of vocational readjustment. During the past year eighteen counties were visited by the present Clinic; 136 cases were seen. One hundred and one cases in the Alexandria Public Schools and at the Central State Hospital were given psychological examinations. Two hundred and ten special cases were examined in Richmond and 549 cases were examined for the Children's Bureau—a total of 996 cases.

The 1930 White House Conference developed the fact that about two per cent of the population were definitely feebleminded. With Virginia's population of 2,421,851, there were about 48,437 feebleminded in the State at that time.

If "first admissions" to mental hospitals is employed as an index, the rate per 100,000 is as follows:

Virginia	96.9	Massachusetts	74.4
New York	91.4	United States	59.4

It may readily be observed that the need for additional Mental Hygiene work in Virginia is great.

Dr. Stauffer is making a request for an additional traveling clinic, with a central clinic at Richmond. This will give a total of three clinics for the State.

Each Clinic staff would be composed of a psychiatrist, a psychologist, and a psychiatric social worker. The central clinic at Richmond would also have a part-time pediatrist, a nurse and two clerical workers. Such a set-up would cost about $45,000 a year. The present State appropriation is $15,000. The additional amount needed would be about $30,000.

It is difficult to imagine a legislature so calloused to the cause of mental hygiene that such an appropriation would be denied. If the Legislature is properly informed the appropriation will most likely be forthcoming. The Committee feels that the Medical Society of Virginia, through its legislative or other suitable committee, could do much to influence the Legislature of Virginia to make an appropriation sufficient to provide the modest set-up which the State Department of Public Welfare believes to be the minimum need of the State at this time.

In addition to the mental Hygiene work, the facilities for the care of idiots, imbeciles, morons and epileptics at the State Colony at Lynchburg should be greatly increased.

There are at present about 1,400 residents, with a waiting list of about 500, mostly male idiots. There are said to be about 1,000 of the latter class, of whom only about 600 are likely to be offered for care. A new building at a cost of about $100,000 is needed for these.

Increased facilities for teaching trades and arts to the low grade and high grade morons are also needed. A new school building at a cost of about $100,000 is needed for this purpose. The present teaching staff of five should be doubled at once.

There are at present some seventy-five criminal feebleminded in the Colony. These should be segregated to another institution.

The medical staff of four should be increased by two additional physicians.

It is believed that such an institution as the one at Lynchburg should not have over 1,800 inmates; there should be two separate plants, one to house only custodial cases, the other to be located elsewhere to train mental defectives.

In pursuance of this report your Committee urges the adoption of the following resolutions:

1st. That the Department of Public Health be requested to include in its budget a request for $5,000 to be expended for the purpose of distributing free diphtheria toxoid for use among the indigent of the State.

2nd. That the Legislative or other suitable Committee be instructed to have a representative of the Medical

Society of Virginia present at the hearings of the Budget Committee of the Legislature with a view to pleading the cause of the Department of Public Welfare for an increase in the appropriation for Mental Hygiene Work in Virginia; to ask for an appropriation for the Colony at Lynchburg sufficient to meet the needs outlined in the text of this report; to ask an additional appropriation of $5,000 for use of the Commission for the Blind; to ask an additional $100,000 for the State Department of Health for the extension of County Health Units and Maternal and Child Health work; and to ask for such an amount as the State Department of Education may deem necessary for its work among the physically and mentally handicapped, especially those who are partially deaf.

J. B. STONE
W. B. MCILWAINE
J. M. BISHOP
E. A. HARPER
C. E. CONRAD
J. N. WILLIAMS
R. D. BATES
L. T. ROYSTER
F. D. WILSON
Chairman

Report of the Maternal Welfare Committee

The Maternal Welfare Committee met January 27, 1939, at the office of the Medical Society of Virginia in Richmond. The American Congress of Obstetricians and Gynecologists was endorsed. The committee members agreed to give as much publicity as possible to the aims and objects, as well as the time and place of meeting of the Congress, and to urge participation in the Congress by all persons interested in maternal welfare, especially general practitioners, public health workers, nurses and social workers.

The committee was unanimously in favor of continuing its endeavor to have the State of Virginia adequately provided with pre-natal clinics. It felt that such clinics not only safeguarded the interests of the expectant mothers who attended them but provided centers for diffusing knowledge of better and safer obstetrics. The State Department of Health has an appropriation available annually for the maintenance of such clinics. The amount available to each city for this purpose is determined by three factors: the total population of the city, the total number of births per year, and the special needs of the area involved. To participate in this fund the following conditions must be met:

1. The plan in its entirety must have the approval of the local medical society.
2. This money has been secured with the understanding that it is to be used only for indigent patients.
3. Patients are derived from: (1) referred by physicians, (2) midwife cases, and (3) referred from approved social agencies.
4. Each clinic must be worth the time and money spent on it.
5. The clinician, or clinicians, shall be designated by the local medical society. Each clinician shall be in charge of the clinic during his period of service, and shall be entirely free to carry out such medical procedures as he may deem wise and expedient.
6. The City Health Department, when the clinic is established in a city, must be responsible for administrative details in connection with the establishment and operation of the clinic.

Your committee was instrumental in stimulating interest in a number of communities and twenty-two clinics working under the above rules were established. Nine were discontinued for want of sustained interest so there was a net gain of thirteen, which brings the total of prenatal clinics in the State to seventy-four.

The last available figures (for 1938) show a maternal mortality of 5.3.

C. J. ANDREWS
T. J. WILLIAMS
A. M. GROSECLOSE
L. M. ALLEN
M. P. RUCKER
Chairman

Report of the Walter Reed Memorial Commission

The Walter Reed Memorial Commission reports a good physical condition of the birthplace of Walter Reed, Belroi, Virginia, with the exception of painting the house. An excellent hard surface walkway from the main road to the front doorstep has been put down and all needed repairs made, other than the painting.

In addition to renewing the fire insurance on the house, we ask for an appropriation of $60.00, or as much thereof as becomes necessary, during the coming year, to take care of the upkeep and improvements, including one coat of paint on the house.

J. D. CLEMENTS
J. W. SMITH
CLARENCE PORTER JONES
Chairman

Report of the Committee to Arrange the Program for the Health Division of the Virginia Conference of Social Work

The Virginia Conference of Social Work arranged its annual meeting in April, 1939, as a regional conference to include representatives from North and South Carolina, West Virginia, District of Columbia and Maryland.

The general program committee requested our committee to build the Health Division Program on the subject of Medical Care. In accordance with this request the following program was presented:

"Medical Care—Its Relation to Public Welfare."
James W. Phillips, Assistant Commissioner Virginia Department of Public Welfare.
Discussion—Dr. R. W. Garnett, Chief Health Officer, Danville.

"Medical Care for the Medically Indigent."
Dr. Wyndham B. Blanton, Richmond.
Discussion—Dr. Carrington Williams, Richmond.

"The Role of the Press in Making Adequate Provision for Medical Care."
Virginius Dabney, Editor of *Times-Dispatch*.
Discussion—Dr. Sidney S. Negus, Medical College of Virginia.

GENERAL EVENING SESSION

"Social Aspects of Medical Care."
Dr. Morris Fishbein, Editor, *Journal A.M.A.*
(Introduction — Dr. Karl S. Blackwell, President Richmond Academy of Medicine.)

The papers presented were excellent, and apparently were well received by the audience.

The Chairman of this committee was asked by the President of the Conference, Mr. Frank D. Preston, to include in this report a word of thanks from the General Program Committee and a request that the Medical Society of Virginia continue this form of cooperation.

CHAS. F. GRAHAM
W. P. JACKSON
F. P. FLETCHER
D. C. WILSON
BASIL B. JONES
Chairman

Report of the Pneumonia Commission

Your Pneumonia Commission in making its annual report wishes to take this opportunity to advise the Medical profession of Virginia concerning what seems to be the consensus of opinion at this time on the vexed question of the relation of sulfapyridine to serum therapy in the treatment of pneumococcic pneumonia. The question is being asked: Is sulfapyridine going to displace serum therapy? Complaint is made that serum is expensive, that typing is difficult and delays treatment, and that administration of serum is time consuming and often associated with reactions. Sulfapyridine is considered cheaper, easier to procure and prescribe and is in the end regarded by some as equally effective. Upon superficial examination these might appear to be the facts, but more careful scrutiny reveals important factors which make such a position at this time untenable.

The treatment of pneumonia with horse and rabbit serum has now been carried on long enough under varying conditions for us to be able to say with certainty that by this method the mortality from pneumococcic pneumonia can be halved. Serum is less expensive than formerly and there is reason to believe that it will be much less costly in the future. The Neufeld technique and the planned distribution of typing stations throughout the country guarantee the rapid and accurate etiological diagnosis of pneumonia. The purification and concentration of sera with the possibility of administering all of it in one or two massive therapeutic doses (as in the case of diphtheria antitoxin) renders the difficulties of administration much less and serum reactions much fewer. We know that serum works and we believe that in the future it will be cheaper and easier to administer.

Sulfapyridine is an effective chemotherapeutic agent in pneumococcic pneumonia. This seems to be a fact beyond dispute although the figures which are now being published in this country were gathered in a so-called mild pneumonia year. The new therapy is not without its dangers—anemia, leukopenia, haematuria, and its more serious cause, the precipitation of calculi in the kidney.

Sulfapyridine therefore requires careful studies of the patient both before and during treatment. It is important to know what organism is causing the disease. For example, sulfanilamide is more effective in treating *streptococcic* pneumonia than is sulfapyridine. It is advisable to type the sputum because we are still in the stage of learning the relative influence of sulfapyridine upon the several types of pneumococci. It is important also to know the concentration of sulfapyridine in the blood because of its irregular absorption, and where absorption fails one must be prepared to resort to intravenous administration or to switch to serum therapy. As with serum therapy, it seems also incumbent upon one who treats pneumonia with sulfapyridine to demand periodic blood cultures since larger doses of the drug are required in bacteremic cases. Finally the doctor must be alert to the possibility of toxic reactions which only frequent visits to the patient and careful clinical and laboratory observations will reveal.

Although evidence is accumulating to show that the combined use of antipneumococcic serum and sulfapyridine is probably the most effective method of dealing with pneumonia, few observers are prepared to deliver a final judgment concerning the relative merits of these two therapeutic agents. The safest plan is probably to regard them both as useful agents to be employed separately or in combination as circumstances demand. Their mode of action is different and their favorable influence upon the disease is probably through unrelated mechanisms.

At this stage of our knowledge we can probably say that for the present the proper procedure in the management of pneumococcic pneumonia is as follows:

1. Collect and type sputum as usual.
2. Secure specimens for blood culture and blood count and repeat as indicated.
3. Begin the administration of sulfapyridine.

Under the following conditions give serum also:

1. If patient's pulse, temperature and respiration fail to return to normal in thirty-six hours.
2. If the duration of the disease exceeds three days.
3. If the patient is more than forty years old.
4. If there is bacteremia.
5. If there is more than one lobe involved.
6. If the patient is pregnant or in the first week of the puerperium.
7. If nausea is intractable.
8. If sputum shows Type III organism.

IF THERE IS NO RESPONSE IN TWENTY-FOUR HOURS AFTER SULFAPYRIDINE ADMINISTRATION:

1. Determine concentration of the drug in the blood (should be as much as 5 mgm. per 100 cc.).
2. Repeat blood culture.
3. Repeat blood count.
4. Look for complications.

INDICATIONS FOR STOPPING SULFAPYRIDINE ARE:

1. Anemia.
2. Agranulocytosis.
3. Haematuria.
4. Rash.
5. Fever.
6. Intractable vomiting.

THERE APPEAR TO BE IMPORTANT QUESTIONS CONCERNING SULFAPYRIDINE WHICH TIME ALONE WILL ANSWER:

1. How effective will sulfapyridine prove in years in which more fatal types of pneumonia will be encountered?
2. In which of the thirty-odd types of pneumococcic pneumonia is sulfapyridine most effective? Are there any types resistant to it?
3. How can we ensure more uniform absorption?
4. Are there delayed after effects?
5. Will careless and uncontrolled use of the drug render it a hazardous agent in the hands of less conscientious practitioners?
6. Will its reputed ease of administration result in a less careful study of pneumonia in the future?
7. Does the combined use of serum and sulfapyridine constitute the optimum therapy under all circumstances?

WALTER B. MARTIN
H. B. MULHOLLAND
P. S. SMITH
HARRY WALKER
WYNDHAM B. BLANTON
Chairman

Report of Committee to Confer with State Board of Nurses' Examiners

There has been no call for a meeting, and, therefore, this Committee has nothing to report.

JOSEPH T. BUXTON
F. S. JOHNS
C. B. MORTON
E. BARKSDALE
W. L. PEPLE
Chairman

Committee on Control of Syphilis

The Committee on the Control of Syphilis makes the following report:

1. Regarding Activities of the State Health Department.

The Committee again wishes to report the activities of the State Health Department have continued to advance and that the progress has been highly satisfactory. A summary of the activities prepared by Dr. Otis L. Anderson and Dr. E. M. Holmes is attached as an appendix to this report. Your attention is particularly directed toward the sections on epidemiology and morbidity reporting.

It is understood that the State Health Department has additional funds available for Venereal Disease Control Work. This Committee is in favor of increased appropriation for the control of syphilis. It is its opinion that there should be an expansion of clinic work, using local physicians with satisfactory remuneration.

2. Regarding the Approval of Bacteriological and Serological Laboratories.

It is the opinion of the Committee that there should be legislation authorizing the State Health Commissioner to approve laboratories performing bacteriological and serological examinations. We therefore submit the following resolution for your consideration:

RESOLUTION

WHEREAS, laboratories making bacteriological and serological examinations perform an important service to the medical welfare and the public health of the State, and

WHEREAS, there should be some authority entrusted with the task of approving such laboratories, therefore

BE IT RESOLVED that the Medical Society of Virginia, acting through its duly elected House of Delegates, endorses legislation authorizing the State Health Commissioner to approve laboratories performing clinical bacteriological and serological examinations.

BE IT FURTHER RESOLVED that a copy of this resolution be sent to the State Health Commissioner and the Chairmen of the appropriate Committees of the State Legislature.

3. Regarding Premarital Examination Legislation.

There has developed considerable lay interest in the requirement of premarital examinations and public demand for legislation. Proposals will probably be introduced before the next meeting of the legislature. It is highly desirable that the medical aspects and relationships of the bill be carefully considered before such a bill is passed.

Your Committee has studied the problems concerned with such legislation and recommends for your consideration the following proposal, which we prefer to call a Marriage Protection Bill.

A BILL

To amend the Code of Virginia by adding thereto a new Section numbered 5073-a, requiring, as a prerequisite to the issuance of marriage licenses, certain physician's statements and reports as to serological tests, prescribing by whom such statements, reports and tests shall be made, penalties for violations, and appropriating and providing for the disbursement of certain funds to cover expenses which will be incurred hereunder.

1. Be it enacted by the General Assembly of Virginia, That the Code of Virginia be amended by adding thereto a new section numbered five thousand and seventy-three-a, which new section shall read as follows:

Section 5073-a. (a) It shall, on and after the first day of August, nineteen hundred and forty, be unlawful for the clerk of any court to issue a marriage license until there shall have been filed with him by or on behalf of each of the parties for whom the license is desired a statement signed by a registered physician, stating that the said physician has caused to be made as to such party a standard serological test for syphilis, and that if such test, on being repeated, and the history or physical findings, indicate evidence of syphilis in a communicable stage, that he has informed each of the parties for whom the license is desired of the result of such test or tests and of the nature of the disease and of the possibilities of transmitting the disease to his or her marital partner or to their children. The report issued by the State Department of Health or the laboratory making the test shall be filed with the clerk together with the physician's statement. Serological tests required by this section shall be made by the State Department of Health or by a laboratory approved for such purpose by the State Health Commissioner; no charge shall be made for any such tests made by the State Department of Health. Physician's statements and reports required to be filed hereunder shall

not be open to public inspection. The physician's statement required by this section may be made, for any person unable to afford the services of a private physician, by any venereal disease clinic physician or any county, city or town health officer, who is also a registered physician; when so made no charge shall be made therefor by any such venereal disease clinic physician or health officer.

(b) The physician's statement and the laboratory tests shall be made not more than thirty days before the issuance of the marriage license.

(c) Any person who shall issue any marriage license in violation of the provisions of this section, or who shall knowingly or wilfully make any false statement in any physician's statement or report required by this section, or who shall without authority change or alter any such statement or report, or who shall knowingly or wilfully file or attempt to file with the clerk of any court, for the purpose of having issued hereunder a marriage license, any statement or report not made or issued by the person by whom the same purports to have been made or issued, shall be guilty of a misdemeanor and upon conviction shall be punished by a fine not less than fifty dollars and not more than three hundred dollars, or by confinement in jail not less than ten days and not more than ninety days, or by both. It shall be the duty of attorneys for the Commonwealth to enforce the provisions of this section.

(d) The requirements contained in this section with reference to the issuance of marriage licenses shall be in addition to all other requirements provided by law.

(e) The term "registered physician" as used in this section means one who holds a certificate or license to practice medicine, such certificate or license having been issued by the Medical Examining Board of this State or a similar board or authority of some other State, territory or country, or of the District of Columbia.

(f) There is hereby appropriated to the State Board of Health, to cover additional laboratory, clerical, printing, and other expenses in carrying out the provisions of this section, out of any moneys in the treasury not otherwise appropriated, the sum of twelve thousand dollars, or so much thereof as may be required, for each year of the biennium beginning July first, nineteen hundred and forty; payments and disbursements therefrom shall be made by the State Treasurer upon warrants of the Comptroller issued upon vouchers signed by the State Health Commissioner or by such other person or persons as the said Commissioner may designate for such purpose.

We recommend this bill as a step toward public education regarding syphilis. It does not interfere with the right of an individual to marry. It does not put a prohibitive additional cost on legitimate marriage. It does not make the physician answerable as to the fitness of a person for marriage. The more zealous reformers may wish something more extreme. The more understanding may feel thankful that illegitimacy will not be increased by laboratory errors or limitations, and that in every case, love-crazed, impetuous youngsters will have the stabilizing counsel of a registered physician. This physician-advisor may be consulted for aid on many other problems as well as the dangers of syphilis to the marital partner or children, and this consultation will make for healthier and more intelligent citizenry in this State.

We therefore submit the following resolution for your consideration:

RESOLUTION

WHEREAS, there is considerable lay interest in the requirement of premarital examinations, and public demand for legislation, and

WHEREAS, it is highly desirable that the medical aspects and relationships of such legislation be sound, therefore

BE IT RESOLVED that the Medical Society of Virginia, acting through its duly elected House of Delegates, endorses the Marriage Protection Bill as proposed by its Committee on the Control of Syphilis.

BE IT FURTHER RESOLVED that a copy of this resolution be sent to the State Health Commissioner and the Chairmen of the appropriate Committees of the State Legislature.

RAYMOND D. KIMBROUGH
DUDLEY C. SMITH
EDWIN E. BARKSDALE
ENNION S. WILLIAMS
Chairman

APPENDIX TO REPORT OF COMMITTEE ON SYPHILIS CONTROL

SUMMARY OF ACTIVITIES, STATE DEPARTMENT OF HEALTH, DIVISION OF VENEREAL DISEASE CONTROL

July 1, 1938—June 30, 1939

The fiscal year ending June 30, 1939, has witnessed conservative and consistant progress in the expansion of the program for the control of venereal diseases in Virginia.

The Division of Venereal Disease Control has essentially been concerned with: (1) a further study of the extent of the venereal disease problem; (2) expansion of treatment facilities through the development of new clinics and improvement of diagnostic and treatment standards in existing clinics; (3) the promotion of educational programs for the laity, the medical profession, health officers and nurses; (4) development of additional laboratory services; (5) the free distribution of antisyphilitic drugs; (6) development of standard clinic record forms; (7) development of a system of inter- and intrastate follow-up of venereal disease cases and contacts; (8) preparation of appraisal form and the surveying of the venereal disease control activities of county health department (city health departments will be surveyed later); (9) collecting and analyzing morbidity reports; (10) cooperative study of premarital legislation with the Committee on Syphilis Control of the Medical Society of Virginia, as well as the factors involved in legislation requiring all expectant mothers to have a serologic examination—to the end that intelligent advice be made available to those concerned with the preparation of legislation for the consideration of the General Assembly at its next session January-Febuary, 1940.

Portion of projected program undertaken in the fiscal year ending July 1, 1939:

1. *Educational program.*
   a. Laity.
      (1) Distribution of bulletins, pamphlets and folders.
      (2) Addresses and the showing of silent and sound motion pictures, and illustrative slides to adult groups, civic organizations and high school students.
      (3) Preparation of material for newspaper publicity.
      (4) Preparation of articles for publication in the Department's Health Bulletin
      (5) Furnishing factual material to health officers for use in newspaper publicity and programs before lay audiences.
      (6) Office and field consultation with lay individuals, groups, and organizations regarding specific venereal disease problems and for the

promotion and development of clinic facilities.

(7) Cooperation in the development of programs for National Social Hygiene Day.

b. Professional.

(1) Distribution of bulletins, pamphlets and reprints. The entire medical profession was sent copies of "The Management of Syphilis in General Practice" and "The Diagnosis of Syphilis by the General Practitioner".

(2) Presentation of papers at county medical society meetings.

(3) Showing of sound motion pictures before medical society and unorganized group medical meetings.

(4) Office and field consultations as well as letters regarding specific diagnostic and treatment problems.

(5) Consultation with local medical groups and societies regarding the development of clinic facilities.

2. *Treatment Facilities.*

a. In December, 1936, there existed nineteen venereal disease clinics in Virginia. Through cooperation and consultation with medical societies, local physicians, civic organizations, interested citizens and local health officers, this number was increased to fifty-four as of June 30, 1938, and to ninety-nine as of June 30, 1939. A total of 142 clinic sessions are now being held each week.

b. Clinics were visited by a member of the medical staff of the Division of Venereal Disease Control for the purpose of studying the administrative, diagnostic treatment standards, and general conduct of the clinic. Such visits serve to inform the venereal disease control officer of local problems. Recommendations were made to increase the efficiency of the local control program.

c. A limited supply of 10 c.c. syringes, 2 c.c. syringes, 20- and 19-gauge needles were furnished clinics during the year.

3. *Standardized Treatment.*

a. The educational program for the medical profession and health officers provides information on standardized treatment.

b. In addition to bulletins distributed to the profession, outlines of specific schedules of treatment are furnished.

c. The majority of the venereal disease clinics are following standardized treatment procedures, but there are some that are slow to respond. The old idea of administering 8-10 arsenical and 8-10 bismuth or mercury injections, alternating with rest intervals, to whoever may have syphilis, be it early or late (and all too-frequently starting with an arsenical), is dying a hard death. The idea of continuous treatment is growing rapidly.

4. *Distribution of Antisyphilitic Drugs.*

The free distribution of antisyphilitic drugs to hospitals, clinics and physicians, for the treatment of all cases of syphilis regardless of the patient's economic status, was begun October 10, 1938. In order to secure free drugs, the case must be reported or designated as previously reported. Drugs may be re-ordered for the same case continuing under treatment, after the lapse of a reasonable length of time.

The following drugs were made available:

Arsphenamine	0.4 gm.	3.0 gms.		
Neoarsphenamine	0.3 gm.	0.45 gm.	0.6 gm.	3.0 gms.
Sulpharsphenamine	0.2 gm.	0.3 gm.	0.4 gm.	
Mapharsen	0.04 gm.	0.06 gm.	0.6 gm.	
Bismuth Subsalicylate in Oil	15 c.c. bottle	60 c.c. bottle		
Triple Distilled Water	10 c.c. ampoule			

A stock of these drugs has been furnished city and county health departments for distribution in their respective jurisdictions. In counties without full-time health service, drugs are furnished direct from the State Department of Health.

The following drugs have been distributed by these agencies to physicians, hospitals and clinics:

	All Arsenicals		Bismuth		Distilled Water		
	Grams	Doses	No. c.c.	No. Doses	No. Amps. (10 c.c.)	No. c.c.	Value
1938							
October	8,440.3	29,870	41,820	20,900	18,150	181,500	$ 5,138.06
November	7,092.0	25,840	29,880	14,940	13,190	131,900	3,974.66
December	6,285.8	19,980	20,685	10,342.5	9,580	95,800	3,005.30
Total	21,818.1	75,690	92,385	46,182.5	40,920	409,200	12,118.02
1939							
January	6,617.3	22,410	25,905	12,952.5	12,850	128,500	3,563.80
February	5,888.2	22,190	23,910	11,955	12,670	126,700	3,495.30
March	8,198.2	28,900	30,705	15,352.5	16,410	164,100	4,497.40
Total	20,703.7	73,500	80,520	40,260.0	41,930	419,300	11,556.50
April	6,526.8	23,000	25,455	12,727.5	13,130	131,300	3,684.84
May	7,424.4	28,370	31,335	15,667.5	15,860	158,600	4,366.06
June	6,519.4	23,570	32,145	16,072.5	15,180	151,800	3,895.10
Total	20,470.6	74,940	88,935	44,467.5	44,170	441,700	11,946.00
Grand Total	62,992.4	224,130	261,840	130,910.0	127,020	1,270,200	$35,620.52

Free antisyphilitic drugs were furnished to the following number of physicians, hospitals and clinics:

1938	PHYSICIANS	HOSPITALS AND/OR CLINICS
October	467	58
November	266	62
December	205	54
Total	938	174
1939		
January	242	70
February	307	69
March	345	72
Total	894	211
April	297	73
May	307	88
June	324	92
Total	928	253
Grand Total October-June	2,760	638

State and Federal institutions, excepting the University of Virginia and the Medical College of Virginia, are not furnished free antisyphilitic drugs. They may be purchased at cost.

Drugs purchased by State institutions:

For the quarter ending December 31, 1938	$ 220.64
For the quarter ending March 31, 1939	539.26
For the quarter ending June 30, 1939	683.80
	$1,443.70

Total amount expended for purchase of drugs for stock supply during October, November, December, 1938	$12,833.00
Total amount expended for the purchase of drugs for stock supply during January, February, March, 1939	30,745.90
Total amount expended for purchase of drugs for stock supply during April, May, June, 1939	9,439.36
Total	$53,018.26

5. *Laboratory Facilities.*

Because of the increased number of specimens submitted to the laboratory for serological examination, two scientific workers were provided in the fiscal year 1938. One additional scientific worker was provided in the fiscal year 1939.

A delayed dark-field service was inaugurated in the Richmond laboratory in April, 1937. During the fiscal year 1938 this same service was made available in our district laboratories located at Luray and Abingdon. When this service was made available, the physicians located in the respective areas served by the laboratory were sent a letter explaining the service, together with a reprint of the bulletin prepared by Doctors J. F. Mahoney and K. E. Bryant of the U. S. Public Health Service, entitled "Delayed Dark-field Examination".

Services available to the profession without cost at the several laboratories:

Richmond Laboratory
1. Serological examination.
   a. Wassermann.
   b. Diagnostic Kahn.
2. Spinal fluid examination.
   a. Wassermann.
   b. Globulin.
3. Serum from lesions.
   a. Delayed dark-field examination.
4. Examination for identification of the gonococcus.
   a. Gram's stain.
   b. Culture not available as a routine procedure, but arrangement for this can be made.

Luray Laboratory
1. Serological examination.
   a. Diagnostic Kahn.
2. Serum from lesions.
   a. Direct dark-field examination.
   b. Delayed dark-field examination.
3. Examinations for identification of the gonococcus.
   a. Gram's stain.

Abingdon Laboratory
1. Serological examination.
   a. Diagnostic Kahn.
2. Serum from lesions.
   a. Direct dark-field examination.
   b. Delayed dark-field examination.
3. Examinations for identification of the gonococcus.
   a. Gram's stain.

Norton Laboratory
1. Serological examination.
   a. Diagnostic Kahn.
2. Serum from lesions.
   a. Direct examination by means of India ink.
3. Examinations for identification of the gonococcus.
   a. Gram's stain.

Arlington Laboratory
1. Serological examination.
   a. Diagnostic Kahn.
2. Spinal fluid examination.
   a. Diagnostic Kahn.
3. Serum from lesions.
   a. Direct dark-field examination.
4. Examinations for identification of the gonococcus.
   a. Gram's stain.

6. *Epidemiology.*

At the annual meeting of county health officers and nurses, a considerable portion of the time allotted to the venereal disease program was devoted to a discussion of the epidemiology of syphilis and gonorrhea. Through field visits to health departments and to clinics, as well as by the distribution of informative reprints, etc., dealing with this phase of the control program, considerable authoritative information has been disseminated.

There is a noticeable improvement in contact investigation procedure and results in local departments, but we are far short of good epidemiological work in many instances.

Contact investigations are not limited to clinic activities, but also embrace the private medical profession. This service is made available to physicians in the reporting booklet for syphilis and gonorrhea, inaugurated January 1, 1938. Space is provided on the reverse side of the case report form for the physician to record the names of contacts. Upon receipt of this information the local health department institutes a follow-up of the contact. This service is of necessity limited to counties and cities having full-time health departments.

As evidence of the extent to which physicians have utilized this service, and satisfactory disposition made by health departments, the following data is recorded:

	No. of case reports made on new reporting forms in counties with full-time health service.	No. and % of reports giving contact information	No. in which satisfactory disposition was made by the local health department
1938			
July	144	20 or 13.8%	11
August	219	23 or 10.5%	15
September	271	29 or 10.7%	15
October	1,079	46 or 4.3%	33
November	1,269	114 or 9.0%	48
December	449	44 or 9.0%	30
1939			
January	724	62 or 9.0%	36
February	564	65 or 12.0%	55
March	612	96 or 16.0%	80
April	485	37 or 8.0%	32
May	599	51 or 9.0%	38
June	460	53 or 15.0%	45
Total, July, 1938-June, 1939	6,875	640 or 9.31%	438

During the fiscal year 1939 the following number of social service visits were made to contacts of clinic patients by local health department personnel:

services of contact investigation and case holding offered to the profession in the reporting system; (4) free antisyphilitic drugs are furnished only for reported cases of syphilis, or cases previously reported.

The following represents activities of the clinics from July, 1938, to June, 1939 (fiscal year):

	New Cases Reported		Old Cases Reported		Discon't. Treatments		Number of Treatments Given			Laboratory Tests			Total Clinic Visits	S. S. Visits	
1938	Syph.	Gon.	Syph.	Gon.	Syph.	Gon.	Ars.	Bis.	Gon.	Sero.	D.F.	Gon.		Conts	Delins
July Aug. Sept.	219	2	2,487	2	325	0	2,780	2,697	3	1,837	0	22	6,701	112	6,835
Oct. Nov. Dec.	140	5	2,903	16	733	0	3,321	3,548	24	2,985	0	13	8,155	142	5,891
1939 Jan. Feb. Mar.	165	8	3,205	23	414	0	4,390	3,504	31	2,114	1	25	9,597	197	5,479
April May June	2,801	278	27,352	495	4,016	294	39,752	40,215	1,635	25,830	203	1,689	89,957	2,280	13,717
Grand Total	3,325	293	35,947	536	5,488	294	50,243	49,964	1,693	32,766	204	1,749	114,410	2,731	31,922

1938	
July-December	5,355
1939	
January-June	4,547
Total	9,902

7. *Morbidity Reports.*

The reporting of syphilis has been markedly increased in the calendar year 1939 over previous years. Gonorrhea continues to be poorly reported. A new system of reporting was inaugurated in counties with full-time health service January 1, 1938, and in counties without this service on September 1, 1938.

Previous and Current Reports.

	Syphilis	Gonorrhea
1935 (Calendar)	5,546	3,438
1936 (Calendar)	6,664	3,202
1937 (Calendar)	6,836	3,262
1938 (Calendar)	16,231	3,605
1939 (Fiscal) (July, 1938-June, 1939)	20,004	3,500

This increase in the reporting of syphilis is considered to be due to (1) more interest in the subject of venereal diseases as the result of general national and State-wide publicity; (2) new reporting system that is more convenient and efficient for the physician; (3)

Report of Tuberculosis Committee

The tuberculosis program being conducted by the official and volunteer agencies has been carefully reviewed and it is gratifying to know that there has been considerable expansion in the activities of both agencies.

The Seal Sale of the Virginia Tuberculosis Association for the year 1938 amounted to $113,164.05, an increase of 14 per cent over previous year. Increased funds have permitted this organization to finance a more complete educational program throughout the State.

Virginia's tuberculosis white death rate showed a slight, but steady decrease for the past two years, while the colored rate has increased. In 1938 there were 1,809 deaths from all forms of tuberculosis with a rate of 47.5 for white and 144.2 for colored.

Tuberculin-X-ray Clinics

The two mobile X-ray units, each staffed by a clinician, historian and technician, will reach seventy-four of the one hundred counties in the State for a week or more of

clinic service. One unit operates in the eastern and the other in the western division of the State. These clinics are largely consultative and all patients are referred by their family physician. Approximately 10,000 persons are examined annually.

The building program at the State Sanatoria is progressing nicely. The majority of these buildings will be ready for occupancy about January 1, 1940. When this program is completed there will be 790 beds in State Sanatoria available for white patients and 250 beds for colored patients. Including municipal and private sanatoria, there will be 1,700 beds for the care and treatment of tuberculosis. With this increase in bed capacity it is hoped that the long waiting list now present will be eliminated.

Collapse Therapy Program

The development of the collapse therapy program has been the outstanding achievement of the Tuberculosis Out-Patient Service during the year. This program was inaugurated by the State Health Department on July 1, 1938, from funds made available at the last session of the General Assembly.

Major chest surgery is being done in the State-owned hospitals, namely: Hospital Division of the Medical College of Virginia and the University of Virginia Hospital. The following privately owned general hospitals are doing major chest surgery: Johnston-Willis in Richmond, Jefferson in Roanoke, Norfolk General and Hospital of St. Vincent de Paul in Norfolk.

During the year, the following operations were done in these hospitals:

103	Patients*	156	thoracoplasties
13	"	14	phrenics
10	"	12	pneumonolyses
2	"	7	bronchoscopic examinations
		1	pneumonectomy
Total: 128	Patients*	183	Operations

*3 died—2 unsuitable (4 bi-lateral cases).

Forty-seven pneumothorax clinics have been established at widely separated points throughout the State, manned entirely by local physicians, many of whom were trained to do this work at the State Sanatoria. Three hundred and fifty-five patients received treatment at these clinics for the year ending June 30, 1939. These clinics have been supervised by the medical staff of the Out-Patient Department. Pleural shock and air embolism are complications expected in chest punctures, but to date there have been no accidents or casualties among the 3,734 chest punctures given at these clinics. Most of these stations are located in small hospitals where the necessary fluoroscope and sterilizing equipment is available.

Special Studies

The need for an inexpensive rapid method of X-raying large groups of individuals is recognized as being one of the most important phases in an adequate case finding program. During the year, X-rays were made at the following institutions using the paper films developed by Powers X-ray Products Company, Inc.:

Hampton Institute, Hampton.
Mary Washington College, Fredericksburg.
Southwestern State Hospital, Marion.
Larus Brothers Tobacco Company, Inc., Richmond.
Loudoun County—Leesburg.
Danville City Health Department.
Virginia Manual Labor and Industrial School, Ashland.
Alexandria City Health Department and Tuberculosis Association.
Hanover County Health Department, Ashland.

The number of individuals X-rayed was 5,825. It is our impression that these films offer an excellent method for the rapid examination of industrial plants, colleges, mental hospitals and other groups where it is impossible to use celluloid films. We have secured valuable information as to the incidence of tuberculosis in these groups that should determine to a large degree our program for the State.

Tuberculin Testing

There has been great interest in the tuberculin testing of school children. The tuberculin test is a valuable means of separating the infected from the non-infected children, but alone is not diagnostic. We are of the opinion that wholesale tuberculin testing should not be made on public school children unless facilities are immediately available for X-raying all of the positive reactors.

Recommendations of the Committee

1. Paper films offer a satisfactory method for mass examination of industrial plants, schools and other groups. It is advisable to check all positive cases with stereoscopic celluloid films before final diagnosis is made.
2. We do not believe that tuberculin tests in the public schools in Virginia should be made unless arrangements are immediately available to X-ray all of the positive reactors. Clinical tuberculosis is so rare among the rank and file of the elementary schools, both white and colored, in the State that it would probably be more advisable to spend our time and money in the high school and college groups.
3. There is a definite need for more beds for negro patients. The increased capacity at Piedmont Sanatorium will only take care of half of the present waiting list at that Institution.
4. This committee recommends that all public school teachers have an annual X-ray examination of their chest.

DEAN B. COLE
FRANK B. STAFFORD
EDGAR C. HARPER
Chairman

Report of Advisory Committee to the State Department of Health

Our Committee has individually talked with Dr. I. C. Riggin, State Health Commissioner, though we have not had a formal meeting.

We are glad to endorse the plan adopted by him for the allotment of funds for physicians participating in the operation of venereal disease clinics.

W. W. S. BUTLER
Chairman

Committee on Revision of Constitution and By-Laws

TO THE PRESIDENT AND MEMBERS OF THE HOUSE OF DELEGATES:

Your committee appointed to revise the Constitution and By-Laws of the Society wishes to submit the following recommendations:

[The words or sentences in brackets indicate suggested omissions, and *italics* indicate suggested additions.]

CONSTITUTION

ARTICLE V.

The House of Delegates shall be the business and legislative body of the Society, and its membership shall consist of the delegates elected by the component societies, the President, the President-elect, *the First Vice-President,* and the members of the council.

ARTICLE VI. LAST SENTENCE.

The council shall consist of one member from each congressional district of the State, together with the President [and], President-elect, *and First Vice-President.*

Remarks: It is felt the First Vice-President should be a member of the House of Delegates and the Council. In event of his succeeding the President he would be more familiar with the workings of the Society.

BY-LAWS

ARTICLE I. SECTION 1, SECOND PARAGRAPH—

[The active members of the Society shall be those who are members in good standing in component societies and those not members of component societies but active members of this Society in good standing at the time of the adoption of these By-Laws, and] *Members in good standing in component societies are eligible for active membership in the Society.* All physicians in good standing in counties where there is no component society, provided they meet all the requirements of the State Society, and have the endorsement of the present members of the Society from such county, *are also eligible.*

Remarks: As this now stands it implies that all members of component societies are active members of the State Society. This is not so. They are not enrolled until they have applied for membership and their dues received. Note Article I, Section 2.

ARTICLE I. SECTION 1, THIRD PARAGRAPH—

Active members who move out of the State become associate members of the Society. Teachers of sciences allied to medicine and medical officers of the Army, Navy and Public Health Service, temporarily stationed in Virginia, may be elected to associate membership through component societies or by [the House of Delegates upon recommendation of] the Membership Commttee.

Remarks: This would avoid the delay of waiting for the next meeting of the House of Delegates.

ARTICLE II. SECTION 1,

The component societies shall be those holding charters from the Society. [All component societies holding charters at the time of the adoption of these By-Laws will retain such charters as component societies.]

Remarks: This second sentence seems unnecessary.

ARTICLE II.

It would be better sequence if Article IX on Dues [page 19] were numbered Article II and followed Article I which deals with provisions for membership. Articles II through VIII should then be renumbered accordingly.

ARTICLE III. SECTION 2,

At each annual meeting there shall be an address by the President and [not more than two addresses by] *by two or more* invited guests.

ARTICLE III. SECTION 5,

No contribution shall appear on the program unless the title is sent to the Executive Secretary-Treasurer [at least five weeks before the annual session] *within the time designated by the program committee* and only then [when endorsed by the program committee] *with the endorsement of this committee.*

Remarks: Five weeks is not sufficient time in which to prepare the program.

ARTICLE IV. SECTION 1, THIRD SENTENCE—

The reports of Committee *and of the Executive Secretary-Treasurer* shall be published in the official publication of the Society [in the issue preceding] prior to the annual session.

Remarks: The issue preceding the annual session often does not come out until a few days before the meeting.

ARTICLE IV. SECTION 2, SECOND SENTENCE—

In any event, each component society is entitled to at least one delegate [and] *or* one alternate in the House of Delegates.

Remarks: Misprint.

ARTICLE IV. SECTION 13—

All officers and delegates elected, all nominations made to the Governor, and a summary of all other business transacted by the House of Delegates shall be reported to the Society at a general meeting before the close of the annual session [in accordance with Article V of the constitution].

Remarks: Omit because there is no reference to this in Article V of the constitution.

ARTICLE VI. SECTION 3,

The President shall deliver the annual address and shall have the privilege, after conference with the chairman of the program committee, of inviting [as many as] two *or more* guest-speakers [at] *for* the annual session.

ARTICLE VI. SECTION 5,

Place after Section 3, and renumber this section and Section 4 accordingly.

Remarks: Better sequence.

ARTICLE VI. SECTION 7, SECOND SENTENCE—

The President-elect shall act for the President in his absence or *temporary* disability, and shall automatically succeed to the presidency at the end of the term.

ARTICLE VI. SECTION 9, SECOND SENTENCE—

In event of the *permanent* disability, death or resignation of the President, a Vice-President, according to rank, shall succeed him for the remainder of his term of office.

Remarks: There is a conflict in the duties of the President-elect and of the Vice-Presidents as now defined in these sections. The use of temporary disability in Section 7 and permanent disability in Section 9 would seem indicated.

ARTICLE VI. SECTION 13, FIRST SENTENCE—

At a time designated by the Program Committee the Executive Secretary-Treasurer shall mail notices to members [at least two months before the annual session], asking for papers and shall, under the direction of the Publication and Program Committee, prepare and send to each member a program of the Annual Session.

ARTICLE VII. SECTION 1, FIRST SENTENCE—

The Council shall consist of the President, President-elect, *First Vice-President* and one member from each congressional district.

ARTICLE VII. SECTION 2, SECTION SENTENCE—

Each councilor [shall] *may* visit each component society in his district [once a year] *either on invitation or as may be necessary.*

Remarks: Some councilors feel these visits should not be obligatory. This would make them optional.

ARTICLE VIII. SECTION 1, THIRD SENTENCE—

He [shall] *may* attend the meetings of the Council and House of Delegates and have the privilege of the floor in these bodies.

Remarks: This would make attendance optional and according to necessity rather than obligatory.

ARTICLE IX.

Change to Article II as previously explained.

ARTICLE IX. SECTION 4,

Change to Section 2, and place after Section 1.

ARTICLE IX. SECTION 2,

Change to Section 4, and place after Section 3.

Remarks: This makes better sequence.

MASON ROMAINE
FRANK FARMER
HUNTER H. MCGUIRE
Chairman

Report of Cancer Committee

TO THE HOUSE OF DELEGATES:

Early in February, 1939, your President appointed a Cancer Committee of the Medical Society of Virginia consisting of the following members of the Society: Dr. Edwin P. Lehman, Chairman, Dr. Richard P. Bell, Dr. Isaac A. Bigger, Dr. Isaac C. Harrison, Dr. Fred M. Hodges, Dr. Robert L. Payne, Dr. Irl C. Riggin, and, *ex officio,* Dr. Alex F. Robertson, Jr., and Dr. Hugh H. Trout.

The object of the appointment of this Committee was to represent the profession of the State in all cancer control activities within the State. Specifically, its duties and program were planned to consist of the following:

(1) To aid an existing attempt to unify activities in the control of cancer within the State.

(2) To act in an advisory capacity to organizations interested in the control of cancer in Virginia.

(3) To sponsor the appointment of local cancer committees in each component society of the Medical Society of Virginia.

(4) To certify treatment centers for cancer throughout the State under provisions of previously announced qualifications in equipment and personnel, such centers to be available for the expenditure of funds raised by any organization devoted to the care of indigent cancer patients.

On February 16th the Chairman of your Committee appeared before the Council and presented a preliminary report corresponding to the above statement. The Council passed a resolution supporting the activities of the Committee.

At the time this Committee was first formed, the Women's Field Army of the American Society for the Control of Cancer and the Virginia Cancer Foundation, which are the two chief organizations interested in cancer control in the State, were making an attempt to join forces. Since the date of the appointment of the Committee this amalgamation has been completed with the help and advice of your Committee. The members of the Cancer Committee of the State Society are also members of the new *Executive Committee of the Women's Field Army and the Virginia Cancer Foundation,* and are therefore in close touch with all activities now going on in relation to cancer control in Virginia.

Your Committee has communicated with the Secretary of each component society of the Medical Society of Virginia, requesting the appointment of a local committee on cancer. A number of the component societies have acted on this request. Those that have not so acted will be requested to do so at the earliest possible time.

Your Committee met on June 1st and adopted standards of qualification for the treatment of indigent cancer patients, which were published in the July number of the VIRGINIA MEDICAL MONTHLY. It has also prepared report blanks to be filed with the Committee for every case of cancer treated in these centers. Thereby, it intends to keep in close touch with the work being done under funds subscribed by the public.

Your Committee feels that the medical profession of the State carries directly the responsibility for the control of cancer and that it, acting in conjunction with the *Executive Committee of the Women's Field Army and the Virginia Cancer Foundation,* can be of real service in furthering this important object.

EDWIN P. LEHMAN
Chairman

Report of Committee on Industrial Health

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

Your Committee on Industrial Health met on April 29, 1939, in the new Clinic Building at the Medical College of Virginia. All members of the Committee were present.

After discussion of what might be done and means of accomplishing it, the Committee decided, for the present, to ask some men working in industrial medicine and health to work up papers that might be presented at the annual meeting of the Medical Society of Virginia. This was undertaken, but so far as we know, no one finished his paper in time to present it to the Committee for a place on the program.

A second thing we did was to make plans for an exhibit on Industrial Hygiene problems at the annual meeting of the Society. In this, we were more successful, and the State Health Department will have an exhibit. There will be some exhibits from the departments of the Medical College of Virginia, which are decidedly in this field, and your Committee is getting from the Council on Industrial Health of the American Medical Association some charts which will be put up as an exhibit for the State Committee.

We have elected Dr. William D. Tillson secretary of the Committee.

As Director of the Bureau of Industrial Hygiene for the State Health Department, Dr. Tillson attended the meeting of the Council on Industrial Health of the American Medical Association in Chicago, January 9th and 10th. Drs. Tillson and Wampler attended the National Conference of Governmental Industrial Hygienists in Washington on April 26th, 27th, and 28th; and, Dr. Tillson again in June attended the meeting of the American Association

of Industrial Physicians and Surgeons who were meeting this year conjointly with the American Conference on Occupational Diseases and Industrial Hygiene, in Cleveland.

We are trying to learn and hope to progress as we know what other people are doing, and find out what can be done in Virginia. By another year we hope to have a much more complete report.

HORACE T. HAWKINS
WILLIAM TILLSON
Secretary
FRED J. WAMPLER
Chairman

Report of Representative to Virginia Welfare Council

The Virginia Welfare Council, at its executive session in April, decided to put on a program on Medical Care in conjunction with the Institute of Public Affairs at the University of Virginia on July 11th, and the addresses proved most interesting and profitable.

In the first, Mr. Boushall took up the "Challenge of Adequate Medical Care from the Layman's Point of View." He stated that after all, the layman is entitled to a point of view, for not only his health but his pocketbook is vitally concerned.

The essential problem is quite simple. All to be done is to provide for more and better medical service, for more and more people, at less and less cost. This is complicated by the fact that there are three different classes of patients: those who can and will pay, those who cannot and will not pay, and the poor creatures in between. Furthermore, there are three different sources of medical service: the government, private charitable institutions, and the doctor's own private practice. To subdivide still further, there are several types of medical service: research, preventive work, treatment and hospitalization.

On what basis are these elements to be integrated?

The old idea that the patient had a right to choose his physician, and that the physician had a right to practice privately, should be preserved for those who can afford it. As for the rest, Mr. Boushall felt that the solution in so far as possible should be through independent group action, and, only when and where that fails, should socialized medicine be carried on by the State and Federal governments. In that way alone can the progress already made be preserved and at the same time medical service be brought to the people.

In the second address of this morning, Dr. Carrington Williams discussed "Medical Needs from the Standpoint of the Physician". Like Mr. Boushall, he believed medical service development should proceed as far as possible along present lines, with a minimum of State, and especially Federal control. He stated that we have the best medical care in the world, but it can be improved and extended, which brings up the familiar, and unsolved problem of distribution.

Dr. Williams supports the American Medical Association in its opposition to the proposed "National Health Act of 1939". Dr. Williams criticized the American Medical Association, however, for failure to offer a substitute program, and suggested principles on which such a program should be built. Each individual or family should pay for service as much as possible, regardless of how little this may be. This preserves the patient's self-respect and discourages hypochondria. Each county, community or city should chip in as much as it can. The State should carry the excess burden, and, when all else fails, the Federal government should "cough up". Big hospitals should only be built where a volume of patients is assured. Rural practice should be encouraged if necessary by small subsidies. Compulsory groups plans for medical service should be worked out and extended.

In conclusion, Dr. Williams foresaw expansion of Federal medical activity as inevitable. When that comes, reason dictates consolidation of this activity into a single Department of Health, headed by a cabinet officer, preferably a medical man.

In the third address of that morning, Mr. Hoehler appraised "Medical Needs from the Standpoint of a Public Welfare Official". He believes that present facilities are inadequate and poorly distributed; that too much penalty is placed on poverty; and that something ought to be done about it.

According to the American Medical Association, only 40,000 Americans are without adequate care; this, Mr. Hoehler said is a gross understatement. Also, he noted that gross sickness and mortality rates in large cities are as bad now as they were fifty years ago, and that the sickness rate rises as economic status sinks. For example, sickness disables twice as many unemployed as employed adults. And what is public opinion on this question? Eighteen per cent feel that the government should keep its nose *out* of this problem; fourteen per cent favor a medical dictatorship by the Federal government; eight per cent don't think at all; and the rest, somewhat over fifty per cent, believe that care of the sick is more important than ideological quarrels with the government. Even the American Medical Association will allow the government to pay for the indigent. Mr. Hoehler believes that we will have to go much further, because of the interdependence of the people in the matter of health. He went quite far in favoring control by the Federal government, and supported the Wagner "National Health Act of 1939". As for compulsory insurance, admittedly there is danger of political interference; but, when it comes to a question of life and death, something has got to be done.

It is the recommendation of your representative that the Medical Society of Virginia should continue its membership in the Virginia Welfare Council.

Report of the Committee on the Virginia State-Wide Safety Conference

The fifth annual State-Wide Safety Conference met at the Jefferson Hotel, Richmond, May 25-27, 1939. This Conference, called by the Governor of Virginia each year, has for its object such high ideals, is so non-partisan, and

universal in its efforts for conservation of human life, and betterment of society in general, that the medical profession and our Society ought to be in the forefront of the movement and its deliberations every year.

At the Danville meeting of the Society last year, it was decided, that instead of one representative, a committee of three, or at least two, be appointed by the President to attend these Conferences so that a more complete report could be brought in each year—it really works a hardship on one man to gather up and report on all the excellent speeches, exhibits, and demonstrations brought out at these Conferences.

Since the Conferences seem to be growing in importance and popularity each year, the Committee now recommends that a little more publicity, and a little stronger urge, be brought to bear on the medical profession to attend—especially should our profession in the city or community in which the Conference is held try to attend. Not only are speeches most instructive and entertaining, but the exhibits and demonstrations are eye-openers. Since the physician, or surgeon, is the first and last word in all accidents of a serious nature, he should be familiar with every device, sign, rule, law, or any other thing by which injury, death, or destruction of property may be prevented, as well as the methods of treating the injured.

The Committee recommends that hereafter the whole Committee be appointed from the city, or community, in which the Conference is held.

Such subjects were discussed as the following: "Are Fixed Speed Limits Desirable?; Speed Limits in Night Driving; Prevention of Highway Crossing—Accidents; Center Strip Marking of Highways; Education of Safe Drivers"; and many others by experienced and outstanding men.

When we pick up our morning paper most any day, and read of some awful, preventable accident, often where some near relative or a friend has been horribly mangled, or maimed for life, we should pause, and ask ourselves: What has the medical profession, or our medical Society, done to prevent these accidents?

A. E. TURMAN
R. ANGUS NICHOLS, JR.
P. ST. L. MONCURE
Chairman

Delegates to Richmond Meeting.

Delegates and alternates already appointed to represent conponent societies at the Richmond meeting of the Medical Society of Virginia are as follows:

Delegate	*Society*	*Alternate*
	ACCOMAC	
Dr. W. W. Kerns		Dr. James C. Doughty
	ALBEMARLE	
Dr. A. D. Hart		Dr. A. M. Smith
Dr. Frank Daniel		Dr. Wm. H. Wood, Jr.
	ALEXANDRIA	
Dr. H. A. Latane		Dr. Carson L. Fifer
	ALLEGHANY-BATH	
Dr. N. B. Jeter		Dr. L. A. Houff
Dr. G. A. Torrence		Dr. M. B. Jarman
	ARLINGTON	
Dr. W. C. Welburn		Dr. J. Ed Payne
	AUGUSTA	
Dr. D. E. Watkins		
Dr. Guy R. Fisher		
	BEDFORD	
Dr. T. P. West		Dr. H. R. Hartwell
	BOTETOURT	
Dr. S. F. Driver		Dr. E. W. Dodd
	CHARLOTTE	
Dr. Thomas Watkins		Dr. J. Reginald Bailey
	CULPEPER	
Dr. O. K. Burnette		Dr. D. W. Kelly, Jr.
	DANVILLE-PITTSYLVANIA	
Dr. I. C. Harrison		Dr. J. J. Neal
	DICKENSON-BUCHANAN	
Dr. P. Q. Daniel		Dr. J. C. Trivett
Dr. T. C. Sutherland		Dr. G. C. Snead
	ELIZABETH CITY	
Dr. Robert H. Wright		Dr. F. A. Kearney
	FAIRFAX	
Dr. William Meyer		Dr. William D. Chase
	FAUQUIER	
Dr. W. O. Bailey		Dr. Richard Mason
	FOURTH DISTRICT	
Dr. J. M. Habel		Dr. James T. O'Neal
Dr. C. G. O'Brien		Dr. D. N. Twyman
Dr. L. A. Law		Dr. W. C. Harman
Dr. E. J. Haden		
Dr. N. P. Snead		Dr. E. B. Nuckols
Dr. Wright Clarkson		Dr. Ruth Mason-Grigg
Dr. J. B. Kiser		Dr. L. P. Jones
Dr. W. D. Kendig		Dr. K. S. Freeman
Dr. W. W. Wilkinson		Dr. R. S. Montgomery
Dr. Allen Lane		Dr. J. A. B. Lowry
Dr. William S. Burton		
Dr. R. A. Moore		Dr. T. G. Hardy
Dr. O. L. Jones		Dr. J. M. Bailey
Dr. B. H. Knight		Dr. F. E. Steere
Dr. T. S. Jennings		Dr. Wm. D. Prince
	FREDERICKSBURG	
Dr. W. A. Harris		Dr. W. Arritt
Dr. John Broaddus		Dr. C. C. Chewning
Dr. Joseph Low		Dr. M. M. Minor
Dr. L. F. Lee		Dr. H. W. Patton
Dr. Thos. B. Payne		Dr. T. W. Dew

Delegate	*Society*	*Alternate*
	HALIFAX	
Dr. L. P. Bailey		Dr. George A. Stover
	HANOVER	
Dr. Judson Vaughan		Dr. J. A. Wright, Jr.
	ISLE OF WIGHT	
Dr. Rea Parker		Dr. F. I. Steele
	LEE	
Dr. G. B. Setzler		Dr. C. H. Henderson
	LOUDOUN	
Dr. G. F. Simpson		Dr. H. A. Spitler
	LYNCHBURG	
Dr. Ernest G. Scott		Dr. T. N. Davis
Dr. Edwin Harper		Dr. Clyde Adkerson
	MID-TIDEWATER	
Dr. J. R. Parker		Dr. M. H. Eames
Dr. W. S. Cox		Dr. Hawes Campbell
Dr. R. D. Bates		Dr. Thomas Latane
Dr. J. M. Gouldin		Dr. E. L. W. Ferry
Dr. W. P. Jones		Dr. H. F. Hoskins
Dr. N. D. Nelms		Dr. J. R. Gill
Dr. H. A. Tabb		Dr. James W. Smith.
Dr. Clarence Campbell		
	NANSEMOND	
Dr. W. H. Chapman		Dr. O. R. Yates
	NELSON	
Dr. H. G. Dickie		Dr. S. G. Miller
	NORFOLK	
Dr. James W. Anderson		Dr. J. Warren White
Dr. C. J. Andrews		Dr. Claiborne Willcox
Dr. P. St. L. Moncure		Dr. Harvie S. Baker
Dr. C. Carroll Smith		Dr. D. Lee Hirschler
Dr. N. F. Rodman		Dr. N. G. Wilson
	NORTHAMPTON	
Dr. J. M. Lynch		Dr. J. R. Hamilton
	NORTHERN NECK	
Dr. L. E. Cockrell		Dr. E. R. Moorman
Dr. R. E. Booker		Dr. Leonard Booker
Dr. V. L. Litsinger		Dr. J. H. Hare
Dr. E. T. Ames		Dr. V. O. Caruthers
	NORTHERN VIRGINIA	
Dr. P. W. Boyd		Dr. J. B. McKee
Dr. C. H. Iden		Dr. C. O. Dearmont
Dr. George Long		Dr. Virgil Hammer
Dr. D. M. Kipps		Dr. O. W. Carper
Dr. C. H. Armentrout		Dr. J. P. Snead
Dr. H. W. Miller		Dr. H. T. Hopewell

Delegate	*Society*	*Alternate*
	ORANGE	
Dr. G. R. Elliott		Dr. Lewis Holladay
	PATRICK HENRY	
Dr. B. A. Hopkins		Dr. W. N. Thompson
Dr. D. L. Fleshman		Dr. W. B. Dudley
	PRINCESS ANNE	
Dr. Ira Hancock		
	RICHMOND	
Dr. Karl S. Blackwell		Dr. Joseph Geisinger
Dr. J. Powell Williams		Dr. Carrington Williams
Dr. H. J. Warthen		Dr. J. Morrison Hutcheson
Dr. T. Neill Barnett		Dr. Warren T. Vaughan
Dr. T. Dewey Davis		Dr. Emory Hill
Dr. C. M. Caravati		Dr. William Branch Porter
Dr. Austin I. Dodson		Dr. I. A. Bigger
Dr. M. Pierce Rucker		Dr. J. Shelton Horsley
Dr. Wyndham B. Blanton		Dr. Thomas D. Jones
	ROANOKE	
Dr. W. L. Powell		Dr. L. D. Keyser
Dr. F. A. Farmer		Dr. W. W. S. Butler, Jr.
Dr. C. H. Peterson		Dr. A. C. Davis
	ROCKBRIDGE	
Dr. F. L. Thurman		Dr. K. N. Byrne
	ROCKINGHAM	
Dr. A. C. Byers		Dr. B. W. Nash
	SOUTHAMPTON	
Dr. M. B. Raiford		Dr. J. M. Bland
	SOUTHWESTERN	
Dr. A. B. Greiner		Dr. E. M. Chitwood
Dr. R. D. Campbell		Dr. A. B. Graybeal
Dr. James King		Dr. R. H. Grubbs
Dr. H. R. Farley		Dr. H. B. Brown, Jr.
Dr. J. Glenn Cox		Dr. W. A. Porter
Dr. E. S. Carr		Dr. L. B. Lowe
Dr. E. E. Epperson		Dr. G. Hunter Wolfe
Dr. Alex. Chaffin		Dr. V. O. Choate
Dr. A. B. Woolwine		
	WARWICK	
Dr. Thos. N. Hunnicutt		Dr. E. L. Alexander
	WISE	
Dr. S. P. Gardner		Dr. T. J. Tudor
Dr. F. E. Handy		Dr. W. W. Griggs

PROGRAM
(PRELIMINARY)

MEDICAL SOCIETY OF VIRGINIA

Seventieth Annual Session

Richmond

October 3, 4 and 5, 1939

Headquarters—JOHN MARSHALL HOTEL

BUSINESS SESSIONS
Tuesday, October 3

COUNCIL—Tuesday, October 3, at 4:00 P. M., in the Byrd Room, John Marshall Hotel.

HOUSE OF DELEGATES—Tuesday, October 3, at 7:30 P. M., in the Washington Room, John Marshall Hotel.

Second Meeting—Wednesday, October 4
Time and place to be announced.

SCIENTIFIC PROGRAM
Wednesday, October 4

GENERAL SESSION
10:00 A. M.

Auditorium—John Marshall Hotel

Call to Order—ROSHIER W. MILLER, M.D., General Chairman, Committee on Arrangements

Introduction of DR. KARL S. BLACKWELL, President, Richmond Academy of Medicine

Invocation—REV. CHURCHILL GIBSON, D.D., Rector, St. James Episcopal Church

Addresses of Welcome—MAYOR J. FULMER BRIGHT, GOVERNOR JAMES H. PRICE

Announcements

Introduction of President

Address of President—The Changing Era in Medical Economics; ALEXANDER F. ROBERTSON, JR., M.D., Staunton

Memorial Hour

Introduction of Mrs. Rollo K. Packard, of Chicago, President, Woman's Auxiliary to the American Medical Association.

Address—Franklin M. Hanger, M. D., (*Invited Guest*) New York, N. Y.

Address—Eugene M. Landis, M.D., Dean of Medicine, University of Virginia, Charlottesville.

Scientific and Technical Exhibits now open

MEDICAL AND SURGICAL SESSIONS
Wednesday, October 4
Medical Section—Monroe Room
2:30 P. M.

Pyrus Malus Pomaciae.
W. O. BAILEY, M.D. Leesburg

Pyrus Malus Pomaciae—of the natural order Roseacea; its chemistry, physiological effects, availability; and therapeutics.

Discussion opened by Wm. R. Pretlow, M.D., Warrenton

Arsenical Exfoliative Dermatitis from Tobacco.
E. E. BARKSDALE, M.D., Danville

The presentation of a series of cases with clinical arsenical exfoliative dermatitis with a high arsenic content in the blood.

Discussion opened by D. C. Smith, M.D., University

Early Myocardial Insufficiency.
WALTER P. ADAMS, M.D., Norfolk

Recognition of the earliest stage of heart insufficiency allows for future prophylactic care. The importance of proper exercise and mental adjustment is stressed.

Discussion opened by T. Dewey Davis, M.D., Richmond

The Management of the Patient with Recurring "Colds", Grippe and Influenza.
JOHN R. HAMILTON, M.D. Nassawadox

This paper deals with the problems of patients who have regular, recurring, characteristic attacks of "colds," grippe or influenza, and some suggestions for their prevention.

Discussion opened by T. Dewey Davis, M.D., Richmond

Some Observations from the Study of a Thousand Cases of Skin Cancer.

CHARLES PHILLIPS, M.D., Temple, Texas

A statistical study of fifteen hundred verified lesions of skin cancer, comparing the occurrence in a typical Southern State and a Southwestern State, calling attention to probable relationship of solar radiation.

Discussion opened by Thomas W. Murrell, M.D., Richmond

Visit Scientific and Technical Exhibits

Wednesday, October 4

Surgical Section—Washington Room

2:30 P. M.

Roentgen Therapy of Certain Infections and Inflammations.

CLAYTON W. ELEY, M.D., Norfolk

The value of roentgen irradiations in treatment of certain inflammatory conditions has been proved, though it has not received widespread use. This is discussed more from a general than a special or technical viewpoint.

Discussion opened by Fred M. Hodges, M.D., Richmond

The Use of the Cow-Horn Peg in Fractures of the Neck of the Femur.

PHILIP W. BOYD, M.D., Winchester

The use of the cow-horn peg in fractures of the neck of the femur, with special reference to types of fractures suitable for the use of the peg and method employed in introducing same.

Discussion opened by James T. Tucker, M.D., Richmond

The Incidence and Significance of Shock in Patients with Acute Head Injuries.

J. M. MEREDITH, M.D., University

In a series of acute head injury cases the incidence of shock was ten per cent. The significance of this fact in the prevention of infection is discussed.

Discussion opened by C. C. Coleman, M.D., Richmond

The Operability of Gastric Malignancy.

CLAUDE MOORE, M.D., Washington, D. C.

The question of operability of gastric malignancies should be left to the roentgenologist, the family physician and where available a gastroscopist. Few surgeons have the technical ability to do a total gastrectomy regardless of the patient's condition.

Discussion opened by Linwood D. Keyser, M.D., Roanoke

Esophageal Diverticula *(Lantern Slides)*.

R. L. PAYNE, M.D., Norfolk

R. DUVAL JONES, M.D., Norfolk

The general opinion that the diagnosis and treatment of the rare occurrence of an esophageal pouch or diverticulum high in the esophagus are difficult is not true. An effort will be made to simplify the diagnosis.

Discussion opened by I. A. Bigger, M.D., Richmond

Visit Scientific and Technical Exhibits

Wednesday Evening Will be Open for Alumni and Special Meetings and Dinners.

Scheduled Meetings

VIRGINIA SECTION, AMERICAN COLLEGE OF PHYSICIANS, Dinner Meeting at 7:00 P.M., in the Byrd Room, John Marshall Hotel

VIRGINIA UROLOGICAL SOCIETY, Dinner Meeting, at 7:00 P.M., in the Lee Room, John Marshall Hotel

Thursday, October 5

GENERAL SESSION

9:30 A. M.

Auditorium—John Marshall Hotel

The Diagnosis and Treatment of Mediastinal Tumors.

CHARLES H. PETERSON, M.D., Roanoke

A discussion of the difficulties arising in the diagnosis of mediastinal lesions, with presentation of cases treated with deep roentgen therapy.

Discussion opened by Clayton W. Eley, M.D., Norfolk

The Use of Protamine Insulin in the Treatment of Diabetes Mellitus.

H. B. MULHOLLAND, M.D., University

A résumé of experience with the use of protamine insulin in the treatment of diabetes. Dosage; time of administration; and comparison of value with regular insulin.

Discussion opened by John B. McKee, M.D., Winchester

Experience with Thyroid Disease in Western Virginia.

RICHARD P. BELL, M.D., Staunton

Thyroid history of the area; series of 426 operative cases, 1923-1938; types, statistics; diagnosis; pre-operative treatment; anaesthesia, operative technique; post-operative treatment; and results.

Discussion opened by A. P. Jones, M.D., Roanoke

A Clinical Pathological Conference—Louis Hamman, M. D., (*Invited Guest*) Baltimore, Md.

Scientific and Technical Exhibits still open

Thursday, October 5
2:30 P. M.

Address—The Cancer Problem—Dr. Mont Reid (*Invited Guest*), Cincinnati, Ohio.

Special Order—Report from House of Delegates.
Induction of President
Adjournment to attend Round Table Discussions

ROUND TABLE DISCUSSIONS

Thursday, October 5
3:30 to 5:00 P. M.
John Marshall Hotel

(General discussion to follow talks by leaders.)

Medical—Monroe Room

Specific Serum and Drug Therapy in Pneumonia.
Leaders: STAIGE D. BLACKFORD, M.D., University.
WALTER B. MARTIN, M.D., Norfolk.

Surgical—Washington Room

The Management of Acute Abdominal Distention (Medical and Surgical).
Leaders: I. A. BIGGER, M.D., Richmond.
R. L. PAYNE, M.D., Norfolk.

Obstetrics and Gynecology—Byrd Room

(Sponsored by the Virginia Obstetrical and Gynecological Society.)

POSTPARTUM CARE
H. H. WARE, JR., M.D., *Leader.*

Care of the Breasts During Pregnancy and Lactation.
GREER BAUGHMAN, M.D., Richmond.

Treatment of Mastitis.
ANDREW GROSECLOSE, M.D., Roanoke.

Care of the Umbilical Cord.
M. P. RUCKER, M.D., Richmond.

Regional Anaesthesia in the Conduct of Labor.
ALBERT T. WALKER, M.D., Portsmouth.

Care of the Cervix and Vagina.
JOHN NOKES, M.D., University.

Retrodisplacements of the Uterus and Subinvolution.
F. O. PLUNKETT, M.D., Lynchburg.

Diet and Correction of Anemias.
WAVERLY R. PAYNE, M.D., Newport News.

Puerperal Infection.
C. J. ANDREWS, M.D., Norfolk.

(Papers limited to ten minutes. Open discussion after last paper.)

TO BE READ BY TITLE

Peripheral Vascular Disease.
J. W. DEVINE, JR., M.D., Lynchburg

Orbital Cellulitis Resulting from Sinus Infection.
E. G. GILL, M.D., Roanoke

Is Virginia Doing Its Duty for the Advanced Case of Tuberculosis.
C. LYDON HARRELL, M.D., Norfolk

Recent Perils in the Practice of Medicine as Viewed by a General Practitioner.
J. PAUL KENT, M.D., Altavista

Traumatic Arterial Thrombosis.
EUGENE L. LOWENBERG, M.D., Norfolk

Thursday, October 5
7:00 P. M.
John Marshall Hotel

Subscription Dinner, Floor Show and Dancing

SCIENTIFIC EXHIBITS

John Marshall Hotel

Demonstrative Exhibits

Wednesday and Thursday, October 4 and 5
Kitchen Adjoining Marshall Room
9:00 A. M. to 6:00 P. M.

Exhibit of Various Heart Conditions.
KINLOCH NELSON, M.D., Richmond.

Wednesday and Thursday, October 4 and 5
1:00 P. M.

Monroe Room

Endocrine Disturbances.
HOWARD R. MASTERS, M.D., Richmond.

Lee Room

Motion Picture: Kielland Forceps, Episiotomy, Repair with Knotless Sutures.
M. P. RUCKER, M.D., Richmond.

Washington Room

The Management of Lesions of the Esophagus.
PORTER P. VINSON, M.D., Richmond.

Byrd Room

Round Table Chest X-Ray Conferences.
DEAN B. COLE, M.D., Richmond—on Wednesday.
FRANK B. STAFFORD, M.D., Charlottesville—on Thursday.

Wednesday, October 4
8:00 P. M.

Byrd Room

Round Table Chest X-Ray Conferences.
EDGAR C. HARPER, M.D., Richmond.

Continuous Exhibits

Open at 5:00 P. M., Tuesday, October 3

Syphilis in Pregnancy and Prevention of Congenital Syphilis—American Social Hygiene Association, New York, N. Y.

Registry Exhibit—American Society of Clinical Pathologists, Denver, Colo.

Human Sterility—JOSEPH BEAR, M.D., Richmond.

Macroscopic Staining of Gross Specimens—REGENA C. BECK, M.D., Richmond.

Chest Survey—JOSEPH R. BLALOCK, M.D., and J. B. FUNKHOUSER, M.D., Marion.

Exhibit on Pneumonia—WYNDHAM B. BLANTON, M.D., and HARRY WALKER, M.D., Richmond.

Exhibits from the Department of Neurological Surgery, Medical College of Virginia—C. C. COLEMAN, M.D., and W. GAYLE CRUTCHFIELD, M.D., Richmond.

Modern Clinic Photography—MAX FREYDECK, Richmond.

Surgery of the Colon and Rectum—A. STEPHENS GRAHAM, M.D., Richmond.

Interesting Surgical Specimens—A. L. HERRING, M.D., T. B. WASHINGTON, M.D., THOMAS BEATH, M.D., and J. H. SCHERER, M.D., Richmond.

Intravenous Urography and Radiogical Treatment of Hemangiomas and Hygromas—FRED M. HODGES, M.D., L. O. SNEAD, M.D., and R. A. BERGER, M.D., Richmond.

Plastic Reconstructive Surgery—JOHN S. HORSLEY, JR., M.D., HARRY J. WARTHEN, M.D., and LEROY SMITH, M.D., Richmond.

Preventive Dentistry for Children—G. A. C. JENNINGS, D.D.S., and U. G. BLADENHAM, D.D.S., Richmond.

Streptococcic Colitis—E. LEROY KELLUM, M.D., Richmond.

Practical Experiences in Fracture Treatment—ALLEN S. LLOYD, M.D., Norfolk.

State Control of Vitamin D Milk in Virginia—R. J. MAIN, PH.D., Richmond.

The Indirect Method of Skin Testing in Allergy—W. AMBROSE MCGEE, M.D., Richmond.

Histoplasmosis—Department of Bacteriology, Medicine and Pathology, Medical College of Virginia.

Lesions of Diethylene Glycol Poisoning, and

The Demonstration and Measurement of the Activity of Mammalian Bronchial Cilia—Department of Pathology and Pharmacology, Medical College of Virginia.

Exhibit on Asthma—A. G. BROWN, III., M.D., EMILY GARDNER, M.D., E. C. MATTHEWS, M.D., and E. W. VAUGHAN, M.D., Department of Immunology, Medical College of Virginia.

Carbon Tetrachloride Cirrhosis and the Rate of Liver Regeneration Following Colchicine—Department of Biochemistry and Pathology, Medical College of Virginia.

Industrial Health—Committee on Industrial Health, Medical Society of Virginia.

Mortality from Diseases of the Blood and Blood Making Organs—Metropolitan Life Insurance Company, New York, N. Y.

Cancer of the Stomach; Size, Location and Operability—CLAUDE MOORE, M.D., Washington, D.C.

Surgery of Stomach; Appendicitis; Operations on Hypospadias and Epispadias—Departments of Surgery and Urology, St. Elizabeth's Hospital, Richmond.

Studies in Hematology—J. H. SCHERER, M.D., Richmond.

Infant Feeding—The Dairy Council, Richmond.

Industrial Medicine and Industrial Hygiene—WILLIAM D. TILLSON, M.D., Richmond.

U. S. P. and N. F. Preparations—Virginia Pharmaceutical Association, Richmond.

Public Health Activities in Virginia—Virginia State Department of Health, Richmond.

Some Observations on Home Delivery Service, Medical College of Virginia—H. HUDNALL WARE, M.D., H. C. SPALDING, M.D., and W. H. EVANS, M.D., Richmond.

Diseases of the Umbilicus and Dependent Edema of the Hands—CARRINGTON WILLIAMS, M.D., and B. W. RAWLES, JR., M.D., Richmond.

Activities of the State Mental Hygiene Clinic—J. N. WILLIAMS, M.D., Richmond.

ANNOUNCEMENTS

Registration and Information

John Marshall Hotel—Lobby

Golf Tournament

Golf Tournament will be at Country Club of Virginia, Tuesday afternoon, October 3. Will tee off at 1:00 P. M.

Prizes will be given for low gross and for low net scores. There will also be a low putting prize.

Entertainment

Thursday, October 5, 7:30 P. M. Subscription Dinner and Floor Show, followed by Dancing.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.

President-Elect—MRS. HENRY A. LATANE, Alexandria.

Corresponding Secretary—MRS. PAUL PEARSON, Aylett.

Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.

Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.

Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

PROGRAM

Seventeenth Annual Meeting

Richmond October 4-5, 1939

Headquarters: John Marshall Hotel

A cordial invitation to attend the meetings and entertainments is extended to each woman attending the Convention.

Registration begins on the afternoon preceding the opening meeting, and each woman is requested to register immediately upon arrival as delegate or visitor. (Registration fee—25 cents.)

Registration booth open 5 P. M., Tuesday, October 3rd.

Mrs. A. G. Shetter, Richmond, Chairman, Registration Physicians' Wives.

Mrs. Austin I. Dodson, Richmond, Chairman, Registration Physicians.

EXHIBIT BOOTH: Mrs. Roy Jones, Alexandria, State Chairman; Mrs. T. B. Washington, Local Chairman.

TRANSPORTATION CHAIRMAN: Mrs. Lee E. Sutton, Jr.

Wednesday, October 4th

8:00 A. M.—Registration Booth open. John Marshall Hotel.

8:30 A. M.—Pre-Convention Breakfast and Board Meeting at Ewart's Cafeteria (across from John Marshall Hotel on 5th Street).

All county Presidents, Presidents-Elect (or Vice-President where there is no President-Elect), State officers, and chairman are expected to attend this breakfast meeting. Mrs. Harvey Haag, Chairman.

General Annual Meeting

10:00 A. M.—Roof Garden, John Marshall Hotel. (Open to all women attending the Convention.)

Mrs. Hawes Campbell, Venter, President, presiding

Invocation: Rabbi Edward N. Calisch.

Address of Welcome: Mrs. J. B. Dalton.

Response: Mrs. Paul Pearson, Aylett.

Report of Committee on Arrangements: Mrs. Ambrose McGee, Vice-Chairman.

Report of Committee on Registration: Mrs. A. G. Shetter.

In Memoriam.

Minutes Sixteenth Convention.

Roll Call of County Auxiliaries—Recording Secretary, Mrs. E. Latane Flanagan, Richmond.

President's Message: Mrs. Hawes Campbell, Venter.

President's Announcement.

Reports:

Corresponding Secretary—Mrs. Paul Pearson, Aylett
Treasurer—Mrs. Reuben F. Simms, Richmond
Organization—Mrs. H. A. Latane, Alexandria
Program and Health—Mrs. J. Walker Jackson, Machipongo
Finance—Mrs. W. B. McIlwaine, Petersburg
Public Relations—Mrs. J. W. Reed, Ocean View
Hygeia—Mrs. Samuel Newman, Danville
Revisions—Mrs. William Lett Harris, Norfolk
Press and Publicity—Mrs. W. E. Butler, Norfolk
Historian, Archives and Research—Mrs. Southgate Leigh, Norfolk
Exhibits—Mrs. Roy R. Jones, Alexandria
Jane Todd Crawford—Mrs. J. A. Wright, Doswell
Leigh-Hodges-Wright Memorial Bed — Mrs. Fletcher J. Wright, Petersburg
Cancer Control—Mrs. Joseph Bear, Richmond
Legislation—Mrs. P. M. Chichester, Richmond
Membership—Mrs. W. Clyde Adkerson, Lynchburg
Parliamentarian—Mrs. Joseph Bear, Richmond

Adjournment.

Luncheon Meeting

"Auxiliary Day" Luncheon (Subscription)—1:30 P. M., Commonwealth Club. Cars will leave Franklin Street entrance of Hotel promptly at 1:00 P. M. Chairman, Mrs. L. O. Snead.

Mrs. Hawes Campbell, President, presiding.

Greetings from:

Dr. Alexander F. Robertson, Jr., Staunton, President, Medical Society of Virginia.
Dr. Karl S. Blackwell, President, Richmond Academy of Medicine
Dr. Hugh H. Trout, Roanoke, President-Elect, Medical Society of Virginia
Dr. P. St. L. Moncure, Norfolk, Chairman, Advisory Council
Dr. W. T. Sanger, President, Medical College of Virginia

Address: "Functions of the Auxiliary" by Mrs. Rollo K. Packard, Chicago, President Woman's Auxiliary to the American Medical Association.

4:00 P. M.—Tea and Reception at the Governor's Mansion. (Mrs. Ernest Trice, Mrs. Charles P. Mangum, Mrs. E. T. Gatewood, and Mrs. Dewey Davis, Chairmen.)

Thursday, October 5th

9:00 A. M.—Roof Garden, John Marshall Hotel.

General Session.

Reports continued:

Mrs. John Simms, Alexandria, Auxiliary to Alexandria Medical Society
Mrs. J. Fred Edmonds, Accomac, Auxiliary to Accomac-Northampton Medical Societies
Mrs. W. E. Dickerson, Danville, Auxiliary to Danville-Pittsylvania Academy of Medicine
Mrs. W. Clyde Adkerson, Lynchburg, Auxiliary to Lynchburg Academy of Medicine
Mrs. Hawes Campbell, Venter, Auxiliary to Mid-Tidewater Medical Society
Mrs. Millard Savage, Norfolk, Auxiliary to Norfolk County Medical Society

Mrs. Thomas Hunnicutt, Jr., Newport News, Auxiliary to Warwick County Medical Society
Mrs. W. Allen Barker, Petersburg, Auxiliary to Petersburg Unit of Fourth District Medical Society
Mrs. Ira Hancock, Creeds, Auxiliary to Princess Anne County Medical Society
Mrs. James K. Hall, Richmond, Auxiliary to Richmond Academy of Medicine
Mrs. Frederick Pearson, Williamsburg, Auxiliary to Williamsburg-James City County Medical Society

Delegates:
Woman's Auxiliary to American Medical Association
Woman's Auxiliary to Southern Medical Association

Unfinished Business.

New Business.

Recommendations from the Board.

Presentation of Membership Trophy by Mrs. W. Clyde Adkerson, Lynchburg.

Reports:
Committee on Resolutions: Mrs. Marion King, Norfolk, Chairman
Committee on Credentials: Mrs. A. G. Shetter, Richmond, Chairman
Nominating Committee: Mrs. J. B. Stone, Richmond, Chairman

Election of officers.

Installation of officers conducted by Mrs. Joseph Bear, Richmond.

Presentation of gavel.

Inaugural message of President: Mrs. H. A. Latane, Alexandria.

Adjournment 10:45 A. M.

11:00 A. M.—Informal Fashion Show at Miller & Rhoads—Walnut Room, second floor—Mrs. Gayle Crutchfield, Chairman.

12:00 Noon—Luncheon (Subscription) —Italian Room, fifth floor, Miller & Rhoads.

4:00 P. M.—Tea and reception at the home of Dr. and Mrs. William Branch Porter, 5125 Cary Street Road.

7:00 P. M.—Floor Show, Dinner (Subscription) and Dance—John Marshall Hotel.

Book Announcements

Annual Reprint of The Reports of The Council on Pharmacy and Chemistry of The American Medical Association for 1938. Cloth. Price, $1.00. Pp. 120. Chicago: American Medical Association, 1939.

This volume as usual contains noteworthy examples of the various kinds of reports made by the Council on Pharmacy and Chemistry: (1) preliminary reports; (2) supplemental reports on therapeutic or pharmacologic problems; (3) reports on the rejection of preparations offered for the Council's consideration.

Among the preliminary reports in this volume that on Sulfapyridine, which carries a special article by Dr. Perrin H. Long, a Council member who has been much concerned with the work on this drug, is perhaps of greatest interest. After the Food and Drug Administration had released the drug for the use of physicians early in 1939, the Council accepted various brands for inclusion in N.N.R. and in connection with the published descriptions issued another status report (J.A.M.A. *112*:1830, May 6, 1939) based on a questionnaire sent to men who had been prominent in the experimental use of the drug. This report, no doubt, will appear in the next volume of reprinted Council reports.

New and Nonofficial Remedies, 1939, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1939. Cloth. Price, postpaid, $1.50. Pp. 617-LXVII. Chicago: American Medical Association, 1939.

Each year a revised list of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association as of January first is published in book form under the title of "New and Nonofficial Remedies." The book contains the descriptions of acceptable proprietary substances and their preparations, proprietary mixtures if they have originality or other important qualities, important nonproprietary nonofficial articles, simple pharmaceutical preparations, and other articles which require retention in the book.

New and Nonofficial Remedies for 1939 omits many articles which appeared in the publication for 1938. A few of these have been omitted by action of the Council because they conflict with the rules that govern the recognition of articles or because their distributors did not present convincing evidence to demonstrate their continued eligibility.

A general index lists accepted articles, including those not described. This is followed by an index to distributors in which appear all the Council accepted articles listed under their respective manufacturers. Finally, a bibliographical index is added for listing proprietary and unofficial articles not included in N.N.R. This includes references to the Council publications concerning each such article as has appeared in *The Journal of the A.M.A.*, Reports of the Council on Pharmacy and Chemistry, Propaganda for Reform, Vol. 1 and 2, or Reports of the A.M.A. Chemical Laboratory.

Virginia Medical Monthly

Founded by LANDON B. EDWARDS, M. D., April, 1874
Owned by MEDICAL SOCIETY OF VIRGINIA since November, 1919
WYNDHAM B. BLANTON, M. D., *Editor*
AGNES V. EDWARDS, Richmond, *Business Manager*

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All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Monthly, 1200 East Clay Street, Richmond, Va.
This journal is not responsible for the opinions and statements of its contributors.
All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.
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VOL. 66. SEPTEMBER, 1939 No. 9

Editorial

Magnum Opus.

The *Practice of Allergy* by Warren T. Vaughan (C. V. Mosby Company, 1939) is not only a good book, but when all is said and done, probably the best book so far written on the subject.

It is a massive volume of one thousand and odd pages, encyclopedic in conception. The Germans would call it *kolossal*. The earlier works on allergy, such as Rackemann's and Coca's, were concerned with asthma, hay fever, and the better recognized clinical entities. Tuft's recent book essayed to cover the whole field. Vaughan's volume is even more comprehensive.

The style is easy. There is a sprinkling of Latin, French and English quotations and other pleasant digressions which add to the attraction of the book and mitigate the severity of technical information so often served up in the dry jargon of strictly scientific language. The illustrations are numerous and practically all of them are original, reflecting a hobby profitably employed by a versatile author.

The book reflects other things. It reflects the tremendous development that the youthful science of allergy has made in the last two decades in the thick and thin of which Dr. Vaughan has played a not inconsiderable part. It will be recalled that allergy has been described as a medical science, bounded on the north by otorhinolaryngology, on the south by dermatology, on the east by pediatrics, and on the west by gastroenterology. Vaughan's book clearly demonstrates how the avaricious young science has long since passed over the boundaries and annexed much territory formerly in the recognized domain of older branches of medicine. It is not an exaggeration to say that the expansion of allergy has not been confined to one plane for hardly a single specialty of medicine has escaped her trespassing feet and the end is not yet.

The book reflects a family tradition with a fondness for immunological investigation and with worthwhile accomplishments already to its credit in that fertile field. Victor C. Vaughan, father of Warren T. Vaughan, is remembered for his investigations of tyrotoxicon, ptomains, leucomains, bacterial proteins, and protein split products. It is not surprising to find his views woven into the theoretical conceptions of the author of the *Practice of Allergy*.

Finally the book reflects the energy and personal contribution to the new science of an able investigator and successful practitioner.

This book is obviously not written as a textbook for medical students. It is too large and discursive to serve that purpose. Full descriptions of the clinical manifestations of allergy are purposely pared down because they are already presumably well known, and much controversial material is admitted into the text—investigative work still *sub judice,*

yet to be confirmed. The internist and the general practitioner who have a slant in the direction of allergy will find the book not heavy but, in places, entertaining reading. To his confrères, his fellow allergists, Vaughan's work will afford not only a guide to source material but source material itself. It will be accepted as a monumental record of what one man has done and will undoubtedly prove a challenge in a field whose occupants have already exhibited a penchant for the writing of books.

Proceedings of Societies

Virginia State Board of Medical Examiners.

Following is a list of successful applicants before the Board at its examinations held in Richmond, in June, 1939:

Dr. Charles Alonzo Anderson, Atlanta, Ga.
Dr. Frank Longstaff Apperly, Richmond.
Dr. Joseph Eagle Barrett, Marion.
Dr. John Edwin Beck, Roanoke.
Dr. Irving Berlin, Hampton.
Dr. Robert Montgomery Bird, Jr., New York, N. Y.
Dr. Winifred Alice Blampin, Norfolk.
Dr. Ralph Boyd Blowe, Boykins.
Dr. Harold Meyer Boslow, Appalachia.
Dr. Benjamin Franklin Bowers, Winchester.
Dr. Guy H. Branaman, Jr., New York City, N. Y.
Dr. Murray Cox Brown, Baltimore, Md.
Dr. Lawrence T. Browning, Williamsburg.
Dr. Ralph Mongar Buttermore, Wheeling, W. Va.
Dr. José D. Coll y Cabrera, Richmond.
Dr. Everett Samuel Caldemeyer, Washington, D. C.
Dr. Frederick John Carpenter, Lorton.
Dr. Blair Winfrey Carter, St. Louis, Mo.
Dr. Carlton Jerome Casey, Williamsburg.
Dr. Samuel Ward Casscells, Cleveland, Ohio.
Dr. Kenneth Jerome Cherry, Richmond.
Dr. William Leman Claiborne, Huntington, W. Va.
Dr. Sidney Bernard Clark Norfolk.
Dr. Beverly Boyden Clary, Richmond.
Dr. John Granville Crawford, University.
Dr. Gerard Bugg Creagh, Dahlgren.
Dr. Horace Milton Dalton, Norton.
Dr. Helmut Max Dehn, Cleveland, Ohio.
Dr. George Denton, Richmond.
Dr. Edward Vincent Dollard, Washington, D. C.
Dr. Charles Harris Dow (*Homeopath*), Wytheville.
Dr. Leo William Dufault, Woodbridge.
Dr. Daniel Sumner Ellis, Richmond.
Dr. Thomas Harrison S. Ely, Richmond.
Dr. Maynard Robert Emlaw, University.
Dr. Robert Ward Evans, University.
Dr. Leslie Allen Faudree, Roanoke.
Dr. James Armstead Fields, Annapolis, Md.
Dr. Malcolm Judson Ford, Pembroke.
Dr. Eugenie Merzbach Fribourg, Richmond.
Dr. Arthur Binford Gathright, Jr., Madison, Wis.
Dr. Peter Gatti (*Homeopath*), Staten Island, N. Y.
Dr. Charles Francis Gaylord, Rustburg.
Dr. John Dee German, Seattle, Wash.
Dr. Garrett Gideon Gooch, III, Norfolk .
Dr. Harold M. Goodman, Richmond.
Dr. Asa Wesley V. Graves, Lacey Spring.
Dr. Bernard Greenblat, Brooklyn, N. Y.
Dr. Thomas Leon Grove, Huntington, W. Va.
Dr. William Lorenz Haltom, Martinsburg, W. Va.
Dr. Robert Kennon Hancock, Cape Charles.
Dr. Eugene Darius Hardin, Richmond.
Dr. John Wythe Hash, Charleston, W. Va.
Dr. Sidney Jesse Hellman, New York, N. Y.
Dr. Brainard Evans Hines, Richmond.
Dr. Harry Wynn Hollingsworth, Leona Mines.
Dr. John Campbell Hortenstine, Seattle, Wash.
Dr. Christian Kevin Campbell Hoyle, University.
Dr. Charles Francis Hudson, Richmond.
Dr. Wheeler O. Huff, Bethesda, Md.
Dr. James William Humphreys, Jr., Cincinnati, Ohio.
Dr. Levi Woodbury Hulley, Jr., Staten Island, N. Y.
Dr. Henry Cleveland Hunley, Jr., Norfolk.
Dr. Marion Fisher Jarrett, Cleveland, Ohio.
Dr. Casimir F. Jaskiewicz, Buffalo, N. Y.
Dr. Harvey Ernest Jordan, Jr., Charlottesville.
Dr. Orville R. Kelley, University.
Dr. Irene Levy Kossove, Richmond.
Dr. Joseph Krimsky, Brooklyn, N. Y.
Dr. Saul Krugman, Brooklyn, N. Y.
Dr. Samuel Summerfield Lambeth, III, Bedford.
Dr. David J. Lehman, Jr., West Orange, N. J.
Dr. George Paul Lemeshewsky, Washington, D. C.
Dr. Robert Coleman Longan, Jr., Jersey City, N. J.
Dr. Oscar Hunter McClung, Jr., Lexington.
Dr. Fredrick Gray McConnell, Louisville, Ky.
Dr. Theodore Baldwin McCord, Fairfax.
Dr. Buford Wallace McNeer, Hinton, W. Va.
Dr. Stanley Howard Macht, Norfolk.
Dr. Joseph Patrick Madigan, Washington, D. C.
Dr. Vincent Mazzarella, Port Chester, N. Y.
Dr. John Warren Montague, Salem.
Dr. Laura C. Gaetjens Morris, Norfolk.
Dr. Claudine Moss, Arlington.
Dr. Arthur James Mourot, Washington, D. C.
Dr. Lloyd Davis Miller, Bristol.
Dr. Lyddane Miller, Charlottesville.
Dr. Bernard Kyle Mundy, University.
Dr. Eugenia Elizabeth Murphy, Madison, Wis.

Dr. Mark Early Myers, University.
Dr. Milton Mercer Neale, Jr., Pittsburgh, Pa.
Dr. Harold I. Nemuth, New York, N. Y.
Dr. Joseph Ney, Harrisonburg.
Dr. Albert Joseph Orlosky, Washington, D. C.
Dr. Maurice E. Broadas Owens, Jr., Richmond.
Dr. Richard Spurgeon Owens, Jr., Roanoke.
Dr. James Fendall Parkinson, Jr., Richmond.
Dr. John Legerwood Patterson, Jr., Richmond.
Dr. Robert L. Payne, Jr., Baltimore, Md.
Dr. John Strother Pearson, Bluefield, W. Va.
Dr. Ralph Stevens Pendexter (*Homeopath*), Arlington.
Dr. Alfred William Pleasants, Jr., South Hill.
Dr. Joseph Page Pollard, Minor.
Dr. Ralph W. Purcell, Baltimore, Md.
Dr. William Clarke Quinn, New York, N. Y.
Dr. Earl Rasmussen, Jr., Atlanta, Ga.
Dr. Japheth Edward Rawls, Jr., Suffolk.
Dr. Charles Knauss Reinke, Colony.
Dr. Joseph Handkey Rogers, Gadsdon, Ala.
Dr. Hunter Heuidekoper Romaine, Madison, Wis.
Dr. Carter Redd Rowe, Fredericksburg.
Dr. Catalina Scarano, Richmond.
Dr. Hilmar Reinhold Schmidt, Petersburg.
Dr. William Porter Sellers, III, Norfolk.
Dr. Natalie Shainess, Wilkes-Barre, Pa.
Dr. E. Ling Shiuh, New Orleans, La.
Dr. John Francis Simmons, Greenville, S. C.
Dr. Harold E. Sisson, Washington, D. C.
Dr. William Richard Smart, Norfolk.
Dr. William Massie Smethie, St. Louis, Mo.
Dr. Edward Barney Smith, Norfolk.
Dr. Francis Dunnington Smith, Henderson, Ky.
Dr. Herbert McKelden Smith, Jr., Staunton.
Dr. Norman Sollod, Washington, D. C.
Dr. Lewis Frank Somers, Lynchburg.
Dr. Joseph Wolfgang Speier, Jr., Raven.
Dr. John Early Stone, Philadelphia, Pa.
Dr. Frank Joseph Strohmenger, Flint, Mich.
Dr. Guy Forrest Sutton, Jr., Washington, D. C.
Dr. James Beverly Thompson, Huntington, W. Va.
Dr. John T. Thornton, Wheeling, W. Va.
Dr. Harry Augustus Tubbs, Temple, Tex.
Dr. George Dennis Vaughan, Jr., Huntington, W. Va.
Dr. Samuel Alexander Vest, University.
Dr. James Volpe, Jr., Jonesville.
Dr. Hilda Jane Walters, New York, N. Y.
Dr. Joseph Prentis Webb, II, Cincinnati, Ohio.
Dr. Frank Dixon Whitworth, Front Royal.
Dr. Leonidas Williams, Wheeling, W. Va.
Dr. R. Bland Williams, Jr., Charlottesville.
Dr. Frank Bays Wolfe, Coeburn.
Dr. James Doctrine Woodley, Norfolk.
Dr. Earl Patrick Wright, Grundy.
Dr. Garland Miller Wright, Richmond.

The Augusta County Medical Society

Held its annual meeting in Staunton on August 2. The following officers were elected: President, Dr. D. E. Watkins, Waynesboro; vice-presidents, Dr. John H. Thomas, Greenville, Dr. A. M. McLaughlin, Waynesboro, and Dr. T. R. Rolston, New Hope; secretary, Dr. J. E. Cox, Waynesboro; and treasurer, Dr. J. E. Womack, Staunton (re-elected). Delegates and alternates to the State meeting were also named at this time. Dr. J. F. Hubbard of Waynesboro and Dr. S. H. Garst of Staunton were appointed to fill vacancies on the board of censors, of which Dr. Glenn Campbell of Staunton is the other member.

The speakers included Dr. Hugh H. Trout, Roanoke, charter member of the Augusta Society and President-Elect of the State Society; Dr. John H. Foulger, director of the Haskell Laboratory of Industrial Research of Waynesboro; Judge Floridus Crosby of the Staunton corporation court; and Dr G. G. Martin, district superintendent of the Methodist Church.

The Fauquier County Medical Society

Held its regular meeting on July 20, under the presidency of Dr. W. O. Bailey. The first business was the election of officers for the ensuing year and also delegate and alternate for the Richmond meeting of the State Society. Dr. Stewart McBryde of Manassas was elected president, Drs. Frank Folk of Warrenton and J. R. Allen of Marshall, vice-presidents, and Dr. William R. Pretlow of Warrenton was re-elected secretary-treasurer.

It was voted to have the dues of the Society $2.00 a year; to have a committee appear before the relief board to protest the present fee system for services to persons on relief; and to have a committee confer with the Warrenton Fire Department to see if they might be interested in procuring emergency equipment for the resuscitation of people overcome by gas fumes.

The Medical Society of Northern Virginia

Met at Panorama Tavern on Skyline Drive on August 8, with the President, Dr. O. W. Carper, of Front Royal, presiding. Dr. J. E. Wood, Jr., University of Virginia, spoke on "Recent Advances in the Study of Hypertension and Their Influence on Modern Treatment", and Dr. Carper on "Psoriasis".

Dr. J. E. Harris, Winchester, is secretary of this Society.

The Mid-Tidewater Medical Society

Met at Saluda on July 25. After the business session and lunch, the following scientific program was presented: Symptoms, Signs and Diagnosis of

Pyloric Stenosis in Infants by Dr. N. D. Nelms, Mathews; Operation for Pyloric Stenosis by Dr. R. L. Buxton, Newport News; Pyloric Stenosis from a Pediatric Viewpoint by Dr. William Falkener, Newport News; Experience with Pyloric Stenosis, illustrated with slides, by Dr. W. L. Peple, Richmond; and The History of Pyloric Stenosis, with illustrations, by Dr. Charles R. Robins, Richmond.

Dr. J. R. Parker, Providence Forge, is President of this Society, and Dr. M. H. Harris, West Point, is secretary.

The next meeting will be held in October.

News Notes

Richmond Awaits You!

Program for the seventieth annual meeting of the Medical Society of Virginia, to be held in Richmond, October 3, 4 and 5, appears in this issue of the MONTHLY. Although this lists many matters of interest, including addresses by invited guests, other interesting papers, a large number of exhibits, the subscription dinner, floor show and dance, and an interesting time for the ladies, the welcome is not expressed which awaits all members and visitors who can come for this occasion. We were unable to give the technical exhibits at this time, but reports for the House of Delegates, and the names of delegates are published.

Don't fail to attend this meeting and make your reservations in advance if possible.

American Congress on Obstetrics and Gynecology,

A congress for the entire medical profession, will be held in Cleveland, Ohio, September 11-15. This is sponsored by the American Committee on Maternal Welfare, and further information may be obtained from their headquarters in The Annex, 650 Rush Street, Chicago, Ill.

Medical College of Virginia News.

Dr. Lewis E. Jarrett, director of the hospital division, recently attended the meeting of the Southern Institute of Hospital Administrators, held at Duke University, Durham, N. C., and gave two lectures on "Maintenance and Operation of Hospitals."

With the loan of two hundred fifty milligrams of radium from the U. S. Public Health Service, National Cancer Institute, the college now has more than half a gram of radium available for use with patients.

The college has just completed ultra-modern morgue, embalming, autopsy and related facilities, including a large super-cooled room and mortuary storage box with accommodations for nine bodies. This unit adjoins and is connected with the Egyptian Building, now being completely reconstructed for the departments of pathology and bacteriology. Similar connections are also provided with all of the hospitals of the college. This new unit has been named Gaillard Laboratory in memory of Dr. E. S. Gaillard, first professor of pathology of this institution to hold a separate chair in this field, 1867-68.

The 102nd session of the college will begin September 18, with convocation at twelve o'clock noon. The first year classes in the schools of medicne and dentistry will, as for the past two years, come in two weeks earlier, September 5, for a period of orientation before the formal opening of the school year. It is expected that repairs to the First Baptist Church property will be completed in time for the convocation exercises to be held in this new addition to the college plant.

New faculty appointments for the year beginning July 1, 1939, are as follows: Dr. Richard W. Fowlkes has been appointed associate professor of dermatology, and Dr. Patrick H. Drewry, assistant professor of neuropsychiatry in the school of medicine. Doctor Drewry will be on leave of absence until February 1, 1940, for special work in neuropsychiatry in England.

Miss E. Louise Grant has been appointed dean of the school of nursing, and Miss Esther L. Moyer, assistant professor of nursing in the school of nursing.

News from Duke Hospital.

From July 31 to August 11 the Institute for Hospital Administrators was held at Duke Hospital, Durham, N. C. The institute was attended by administrators of seventy-two hospitals and, in addition

to seminars and discussions, a series of visits were made to other hospitals in Durham and in five other towns in North Carolina.

Married.

Dr. Robert Beall Hightower and Miss Rossell MacDonald, of Norton, July 20. Dr. Hightower was recently field clinician in pediatrics with the State Health Department and with the Department of Clinical and Medical Education of the Medical Society of Virginia. He is now assistant director of Child Hygiene and Sanitation in the school system of the District of Columbia.

Dr. Carl Scott Lingamfelter, Jr., Dumbarton, and Miss Marguerite Mae Clarke, Richmond, August 5. Dr. Lingamfelter, who graduated from Medical College of Virginia in 1938, recently completed an internship at Johnston-Willis Hospital, Richmond, and has just taken up general practice at Dumbarton.

Dr. Percy Ryland Fox, McComas, W. Va., and Miss Nina Cornelia Kelly, August 5. Dr. McComas is an alumnus of the Medical College of Virginia, class of '23.

Dr. Frank A. Kearney, II, Phoebus, and Miss Frances Elizabeth Tilman, Saltville, June 10.

Dr. Edward E. Haddock, Richmond, and Miss Katherine Lois Scott, Red Wing, Minn., July 31. Dr. Haddock is a member of the class of '38, Medical College of Virginia, and interned at Wisconsin General Hospital, Madison. He is now connected with the house staff of the hospital division, Medical College of Virginia.

Drs. Ware and Evans.

Dr. H. Hudnall Ware, Jr., Richmond, announces the association of Dr. W. Hughes Evans in the practice of obstetrics and gynecology. Dr. Evans served an internship at the Hospitals of the Medical College of Virginia, and has recently completed a two-year residency in obstetrics.

Associated with Father.

Dr. William P. McGuire, class of '35, University of Virginia Medical School, has become associated with his father, Dr. Hunter H. McGuire, with offices at 105 North Braddock Street, Winchester. Like his father, he will limit his work to treatment of diseases of the eye, a specialty in which he has had considerable training.

Dr. J. Gordon Rennie,

Recently associated with St. Luke's Hospital, Bluefield, W.Va., is now located in Bedford, where he is engaged in the practice of general surgery at the John Russell Hospital.

Dr. and Mrs. John Hobart Reed

And their son sailed from Vancouver on August 19, to return to Haichow, China, after having been on a furlough in Richmond for the past year. Dr. Reed, who is an alumnus of the Medical College of Virginia, class of '28, will resume his work at the Ellen Lavine Graham Hospital, in the Southern Presbyterian Mission field.

Dr. Clarence W. Trexler,

Class of '26 University of Virginia, Department of Medicine, now of Honolulu, was recently elected president of the Honolulu County Medical Society. He is also first vice-president of the Hawaii Territorial Medical Association.

Dr. David S. Garner,

Since July, 1936 an assistant director of the Hospital Division of the Medical College of Virginia in Richmond and medical director of its out-patient division, has been appointed assistant medical director of the Shenandoah Life Insurance Company, and enters upon his new duties at the office in Roanoke on September 1. Dr. J. H. Dunkley is medical director.

Dr. James O. Burke,

Class of '37, Medical College of Virginia, after two years at the State of Wisconsin General Hospital in Madison, has returned to Richmond for the practice of his profession. He was recently named as one of the assistants in medicine at his alma mater.

Appointment at Jefferson Medical College.

Dr. James R. Martin, chief surgeon in the State Hospital for Crippled Children at Elizabethtown, has been named the James Edwards professor of orthopedic surgery on the senior faculty of Jefferson Medical College, Philadelphia, succeeding Dr. J. Torrance Rugh, who has resigned after occupying the chair since 1918. Dr. Rugh has been elected a professor emeritus of the College.

Dr. Martin graduated from Jefferson Medical College in 1910 and has been prominently identified with his alma mater and various hospitals in the Philadelphia region since then. He became identified with the hospital's orthopedic department in 1913 and retained this identification until 1938.

Dr. J. G. Jantz,

Recently of Bedford, has moved to Newton, Kansas, where he has taken over the practice in general surgery and medicine of the late Dr. William F. Schroeder.

Dr. W. H. Copley,

Medical College of Virginia, class of 1938, has located for practice at 1616 Hull Street, Richmond. He recently completed his internship at Johnston-Willis Hospital of this city.

Dr. O. L. Huffman, Jr.,

Who has recently been at the Roanoke Hospital, has located for practice in Sugar Grove, W. Va. He is a graduate of the Medical School, University of Virginia, in 1938.

Dr. Fletcher D. Woodward,

Charlottesville, has been elected President of the newly formed Albemarle Kennel Club.

Dr. A. B. McCreary,

Jacksonville, Fla., has recently been named Health Officer of Florida. He has been in health work for the past fifteen years and was formerly health officer of the Northampton County (Va.) Health Unit.

Dr. Frank Jones,

Medical College of Virginia, class of 1934, has been appointed surgeon at the Catawba General Hospital in North Carolina. He is at present doing graduate work at Johns Hopkins Hospital and will assume his new duties October 1.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Kaufmann, E.—Lehrbuch der speziellen pathologischen anatomie.
King, H. D.—Life processes in gray Norway rats during fourteen years in captivity.
Krumbhaar, E. B.—Pathology. (Clio medica XIX.)
Laidlaw, P.—Virus diseases and viruses.
Lanz & Wachsmuth.—Praktische anatomie. Bd. 1. Tl. 4—Bein u. Statik.
Lewis, T.—The blood vessels of the human skins and their responses.
Loomis, F.—Consultation room.
Lund, F. B.—Greek medicine. (Clio medica XVIII.)
Lynde, C. J.—Science experiences with inexpensive equipment.
McCollum, E. V. *et al.*—The newer knowledge of nutrition. 5th edition.
McCoy & McClung.—Anaerobic bacteria and their activities in nature and disease.
MacEachern, M.—Medical records in the hospital.
Marie, J. S. F.—Medical vocabulary and phrases.
Mason, R. L.—Preoperative and postoperative treatment.
May, R.—The art of counseling, how to gain and give mental health.
Millis, H. A.—Sickness and insurance.
Morrison, W. W.—Diseases of the nose, throat and ear.
Northrop, J. H.—Crystalline enzymes.
Parsons, W.—The circulation of the blood.
Pelouze, P. S.—Gonorrhea in the male and female.
Podolsky, E.—The doctor prescribes music.
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Obituary Record

Dr. Lawrence Taylor Price,

Richmond, died suddenly in his office on August 15 as the result of a heart attack. He was fifty-

eight years of age and a graduate of the Medical College of Virginia in 1903. Shortly after graduation, he became an instructor in genito-urinary surgery at his alma mater and had specialized in urology since 1911. In 1935 he was made emeritus professor of clinical genito-urinary surgery at this college. Dr. Price was an active member of the Medical Society of Virginia, having served on its council for several years and as chairman of its legislative committee at a time when there was much important medical legislation.

In addition to his work in the medical profession, Dr. Price was quite active in civic affairs, having served on the Richmond City Council, as a member of the city school board, in military service, and in various organizations in all of which he was an earnest and enthusiastic worker.

His wife and four sisters survive him.

Dr. James Beverly DeShazo,

A leading citizen and prominent physician of Henry County, died suddenly at his office in Ridgeway, July 31, while attending a patient. He was born near Ridgeway, seventy years ago. After attending the U. S. Military Academy at West Point, he studied medicine at Bellevue Hospital Medical College, New York, graduating in 1892. Shortly thereafter he located at Ridgeway, and for the past fifteen years had specialized in the treatment of skin diseases. Dr. DeShazo had been a member of the Medical Society of Virginia for forty-five years and was chairman of its Legislative Committee from 1900 to 1908 during which time he did much work leading to the repeal of the special State license tax on physicians. His wife, daughter, two grandchildren and a brother survive him.

Dr. Thomas Henry Wilkins.

The Norfolk County Medical Society wishes to express profound regret and sorrow at the passing of Dr. Thomas Henry Wilkins of Portsmouth, Virginia, who was one of its oldest and most valued members.

Dr. Wilkins was born in the City of Portsmouth, Virginia, on August 13, 1877. He was educated in private schools, and at an early age began the study of pharmacy. He enjoyed rapid advancement in his studies and was soon qualified as a registered pharmacist. After practicing that profession for several years he entered the University College of Medicine in Richmond, where he graduated with distinction in 1900. He returned to his native City of Portsmouth and engaged in the practice of medicine there until his death on June 29, 1939.

Dr. Wilkins possessed a lovable disposition, and was singularly noted for his intense loyalty to his host of friends. He was a skillful physician of the highest integrity and labored unceasingly for the welfare of his patients. His community and his profession suffered a distinct loss in the passing of this beloved physician.

WHEREFORE, BE IT RESOLVED that a copy of these resolutions be recorded in the annals of the Norfolk County Medical Society and that a copy be sent to the bereaved family of the deceased.

JOSEPH D. COLLINS,
GEORGE H. CARR,
S. B. MOORE,
Committee

Dr. Randolph McCutcheon,

Formerly of Colonial Heights, Petersburg, died at his home in South Charleston, W. Va., on July 28, following a heart attack. He was forty-eight years of age and a graduate of the Medical College of Virginia in 1924. Dr. McCutcheon was for a number of years a member of the Medical Society of Virginia. His wife and two children survive him.

Dr. James Massie Gleason,

Amonate, died as the result of heart disease on May 25 at the age of thirty-two. He graduated from the Medical College of Virginia in 1932, following which he did his intern work at Sheltering Arms Hospital, Richmond.

Dr. William J. Mayo,

Rochester, Minn., died July 28, aged seventy-eight, as the result of gastric ulcer for which he underwent an operation several months ago. He survived his brother, Dr. Charles H. Mayo, with whom he was so closely associated, by two months. Dr. William Mayo was a former president of the American Medical Association, a brilliant surgeon, and one of the leaders in the building of American medicine. His wife and two daughters survive him.

Dr. Callender Lafayette Johnson,

Dallas, Texas, died November 14, 1938, at the age of seventy. He was a native of Leesburg and attended the former University College of Medicine in Richmond. Dr. Johnson received his medical degree from the Howard University in Washington, D. C., in 1887. His wife and a son survive him.

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*Frazer, J. G.: The Golden Bough, vol. 1, New York, Macmillan & Co., 1923

It is ironical that the practice of attempting to cure rickets by holding the child in the cleft of an ash tree was associated with the rising of the sun, the light of which we now know is in itself one of Nature's specifics.

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OFFICIAL PUBLICATION OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 66, No. 10.
WHOLE No. 1048.

RICHMOND, VA., OCTOBER, 1939

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CONTENTS

Herniation of the Intervertebral Disc and Associated Lesions—With Report of Cases. Homer L. Skinner, M.D., F.A.C.S., Baltimore, Md., and James T. Rountree, M.D., Woodstock, Va. 575

Body Weight and Hemoglobin Concentration. C. R. Spealman, Ph.D., Richmond, Va. 591

Anomalies of the Female Generative Organs—With Report of a Rather Remarkable Case. P. St. L. Moncure, M.D., Norfolk, Va. 593

Preliminary Report on Dr. Alexander Finikoff's Treatment for Surgical Tuberculosis—With a Summary of 14 Cases. Challis H. Dawson, M.D., Suffolk, Va. 596

Pediatric Endocrinology. Chas. P. Mangum, M.D., F.A.A.P., Richmond, Va. 605

Obstetrical Amnesia, Analgesia, and Anesthesia—With Special Attention to Their Efficiency, and Safety to Mother and Child. Charles W. Dorsey, M.D., Roanoke, Va. 607

Intestinal Obstruction. Charles H. Lupton, M.D., Norfolk, Va. 610

Intra-Abdominal Hernia. William A. Johns, M.D., Richmond, Va. 620

Placenta Previa. Vincent Edward Lascara, M.D., Norfolk, Va. 623

The Chemistry of Intelligence. Edward Podolsky, M.D., Brooklyn, New York 625

John Snow's Work on Cholera. Wiley A. Preston, B.S., Richmond, Va. 628

PUBLIC HEALTH STATISTICS 630

NEW MEMBERS 630

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 631

TRUTH ABOUT MEDICINE 631

BOOK ANNOUNCEMENTS 632

EDITORIAL 634

PROCEEDINGS OF SOCIETIES 635

NEWS NOTES 636

OBITUARY RECORD 640

INDEX TO ADVERTISERS—Advertising Page 6

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RICHMOND, VA., OCTOBER, 1939

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HERNIATION OF THE INTERVERTEBRAL DISC AND ASSOCIATED LESIONS—WITH REPORT OF CASES.

Homer L. Skinner, M.D., F.A.C.S.,
Chief Surgeon, U. S. Marine Hospital,
Baltimore, Maryland,
and
James T. Rountree, M.D.,
Surgeon, Cora-Miller Memorial Hospital,
Woodstock, Virginia.

The question of sciatica and low-back pain has been one of the chief economical considerations for many years, and the chiropractors have reaped a harvest from physicians' inability to successfully cope with this problem. We have advocated many worthwhile treatments, such as fever therapy, medicinal therapy, removal of foci of infection, fasciotomy, X-ray therapy to the nerve root, extradural and intradural injections and spinal fusion, which have been in many instances gratifying, but in other cases without results. For the above reason, the treatment of a particular group of these cases has been welcomed and studied by the medical profession.

The treatment of this condition is not offered as a panacea for all back cases, but it is believed that the majority of buttock and sciatica pain cases have a good possibility of being due to a herniated intervertebral disc and that this diagnosis should be ruled out before radical procedure, such as spinal fusion, is resorted to.

The anatomy of the spinal column and cord will not be discussed in detail. However, Figure A shows that the cord ends at the lower border of the first or the upper border of the second lumbar vertebra, and the thecal covering extends some distance inferiorly. Anterior to the bodies of the vertebra, the strong anterior longitudinal ligament, and posterior to the vertebral bodies is the posterior longitudinal ligament. The interspinous ligament connects the spinous processes and the ligamentum flava is attached to the laminae and in some regions bridges the intervertebral foramina through which the nerve roots pass. (See Figure B). These latter ligaments have been proven to be the cause of radiculitis by means of their hypertrophy. The intervertebral discs which lie between each vertebral body are composed of three main components, and are: (1) the annulus fibrosis which surrounds the disc and holds the exposed components, not adjoining bone, in place; (2) the fibrocartilage disc itself, in which is the third and most interesting component—the nucleus pulposus, a remnant of the chorda dorsalis. The nucleus pulposus is comparable to a hydraulic shock absorber; it is a gelatinous body which is compressible to a certain degree in its closed compartment. Histologically, it is peculiar and is neither hyalin nor fibrocartilage in its normal state, but upon extrusion it becomes very similar to fibrocartilage; thus it has a tendency, if in this state, to regenerate. It is this latter part which protrudes and causes irritation of the nerve elements if there is a traumatic, pathological, or inherent weakness of the surrounding component tissues. In various ages the nucleus pulposus is variable in structure, as was brought out by Beadle of England. Generally speaking, the younger the individual the higher water content of the nucleus and the more elasticity of the nucleus pulposus in the younger age group and the less elastic and more fibrous in the older age group.

The physiology of the spinal fluid is still under discussion, but the general opinion is that the fluid that circulates in the cerebrospinal channel is a modified form of lymph produced by the choroid plexuses, and after circulating through this channel

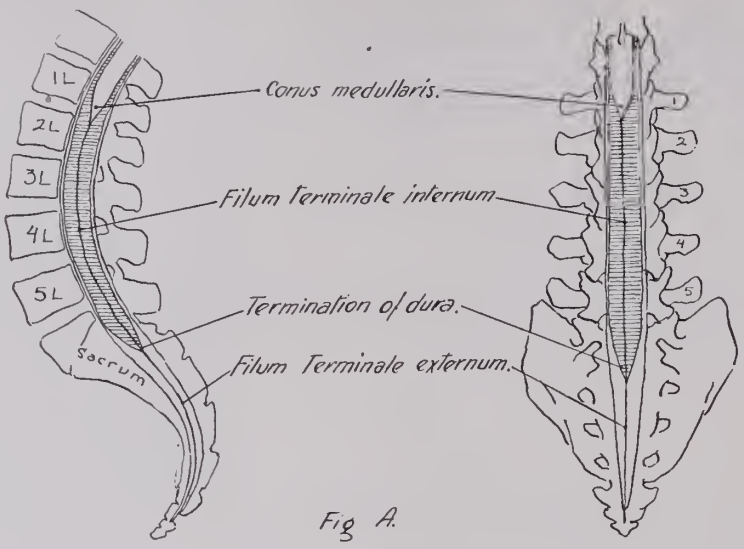


Fig A.

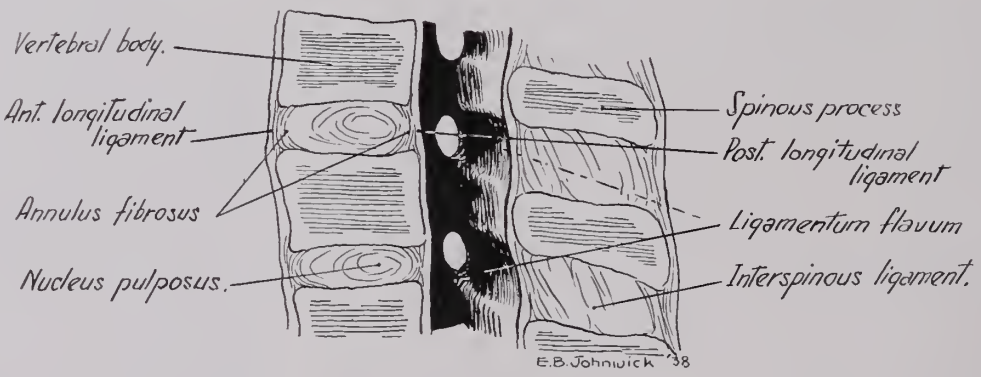
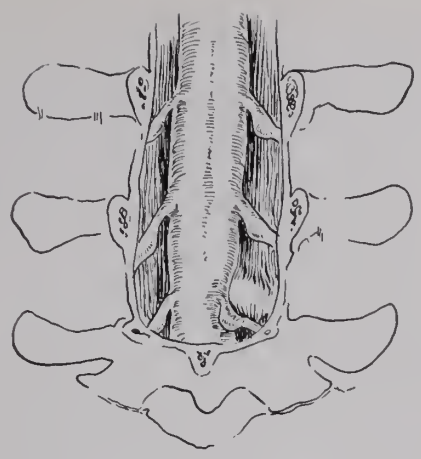


Fig B.

it is absorbed by the arachnoidal granulations and the lymphatics of the brain and spinal cord. The chemistry of the spinal fluid is well known.

A historical survey shows that the first careful study of herniation of the intervertebral disc was done by Schmorl, who found and reported 737 cases in a series of slightly over 2,000 autopsies of the spinal column. Many of these cases showed a herniation of the nucleus pulposus into the cancellus body of the vertebra, but he also found that some of the cases showed rupture into the surrounding soft tissues. In 1896, Kocher reported a case of rupture of the intervertebral disc in a young man who fell from the height of 100 feet, landing in a standing position. He died of internal injuries in a few hours and autopsy showed that he had a rupture of the disc between the first and second lumbar vertebrae without fracture of the vertebral bodies. In 1911, Middleton and Teacher, of Scotland, reported two cases—both found on autopsy. Also in this year, Goldthwait reported a case suffering from marked sacro-iliac strain who developed a flaccid paralysis of a leg, with a disturbance of the genito-urinary system and incontinence of feces following manipulation under ether for remedy of sacro-iliac disease. The first operation on the spinal cord to be reported was done by Victor Horsley and reported in 1889. Thus, we see that this is an old disease with a new name because neurological surgeons have for many years recognized and know the cartilaginous tumor, which is extradural and arises from the intervertebral disc, and that this tumor may cause, through pressure on the spinal cord or cauda equina, neurological symptoms. Adson has reported cases, calling them fibro-



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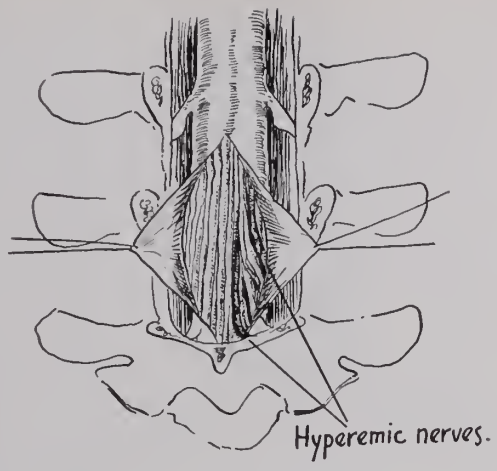

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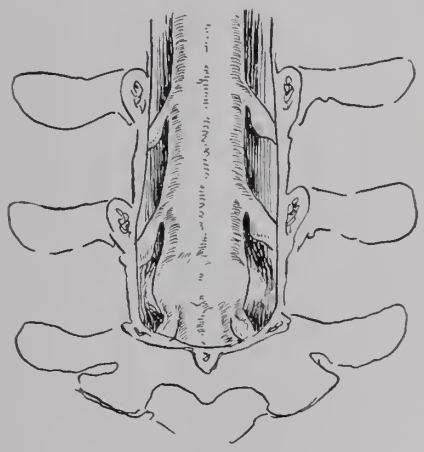

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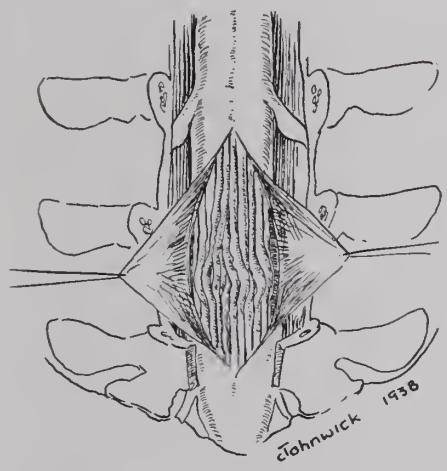
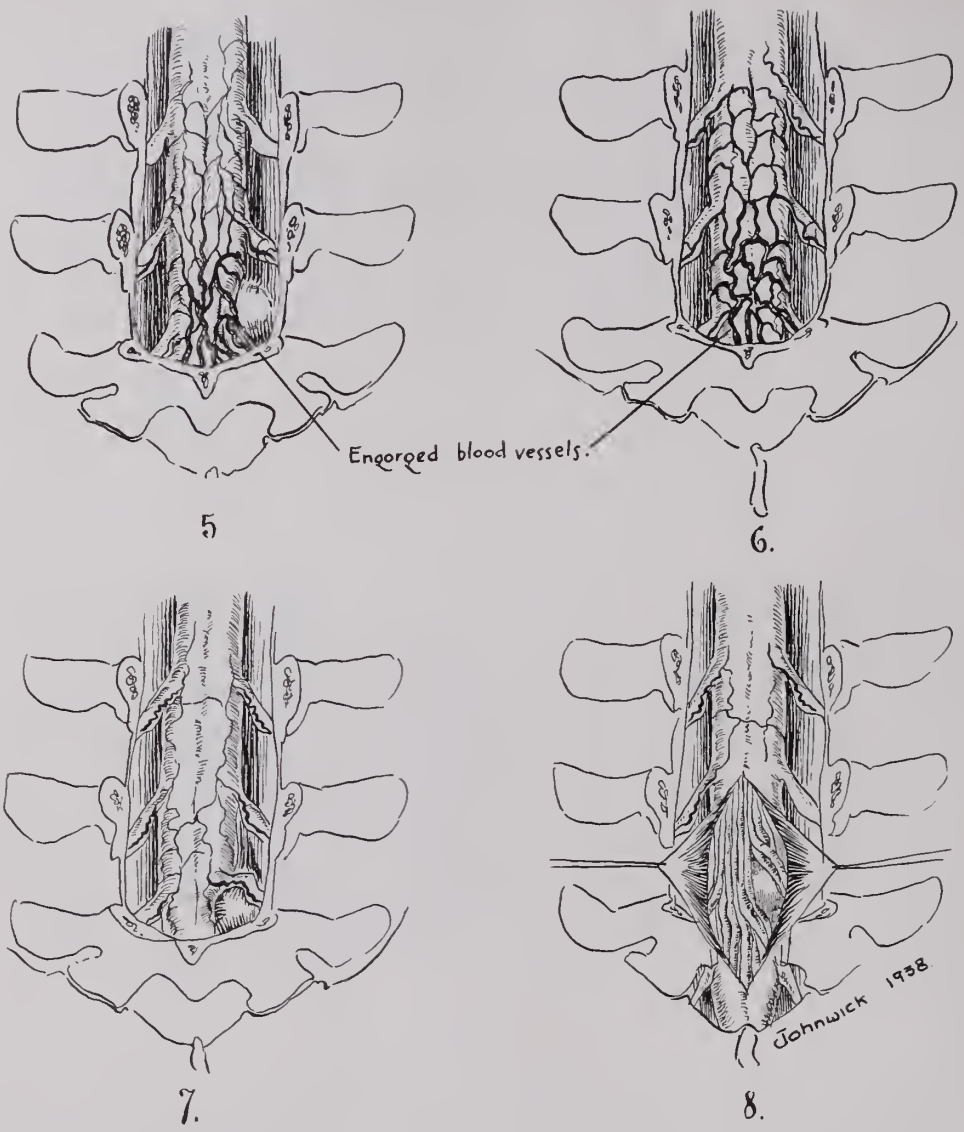


4.

chondromata. Ellsburg and Stookey reported early cases and concluded that the tumor was benign, and that the terms chondroma or ecchondrosis best described the condition. The histological examination of the material removed at operation of their cases showed apparently normal disc tissue. In 1929, Dandy reported two cases of loose cartilage and he considered the condition similar to osteochondritis desiccans. Of late, Bailey, Mixter, Love and Williams have reported cases of herniated intervertebral discs. A most instructive article on this condition by Hampton and Robinson appeared in the December, 1936, *American Journal of Roentgenology*. Other American, German and French authors have contributed to this copy.

In discussing the diagnosis of herniated intervertebral discs, one must first remind the reader that many conditions, such carcinoma of the bladder and rectum, prostatitis, myositis, renal pathology, intra-abdominal conditions, arthritis, neoplasm of the cord and its theca, vertebral fracture and compression, hypertrophied ligament flava and similar conditions must be ruled out. It is our opinion that at least 70 per cent of all true sciaticas have some impingement upon the radices of the nerve supply affected, and that they may be cured by proper surgery. We must keep in mind that it is essential that we treat the cause and not the effect of these conditions. The usual picture presented is a patient who has had expert medical attention and has had various diagnoses and treatment with no relief.

Trauma is probably present in all cases but, be-



cause of its insignificance, will often not be remembered. Repeated minor trauma is of most importance. It is believed that the most probable position to induce disc herniation posteriorly or posterio-laterally against the radices or cauda is that of flexion when the anterior ligaments are relaxed and the posterior ligaments of the spine are under tension. Thus, while straining in a bent-over position, the patient will often suffer his primary severe sciatic pain which may be severe enough to cause him to fall to the ground. Other cases may give a history of direct trauma, such as falling on the buttocks or direct force to the spine at the affected area. It has been suggested that strenuous spinal or sacro-iliac manipulations may cause or predispose to the herniation of the intervertebral disc. Some of our cases have had their symptoms aggravated after manipulation. There are others who claim that repeated trauma by a too-far introduced spinal puncture needle may cause tearing of the annulus fibrosis or posterior ligament with weakening of these structures, and thus predisposing to a nucleus pulposus herniation. We have been unable to find any familiar sciaticas so we cannot connect any hereditary weakness with this condition at present.

The tendency for this disease is probably in the male because of their more laborious duties; however, it is not uncommon in women. The age incident in our cases was 39.8 years, with a variation from twenty-six to fifty-six years. Other authors

claim a larger variation but all agree that the condition is most common in middle age. We have had only one case in a colored man, but it is possible that this race is less likely to seek relief until far advanced, so it is probable that more cases will be found in this race. No other racial predisposition has been noticed. The most important symptoms are: localization of the pain; its radiation down the sciatic nerve or its branches, especially on coughing, sneezing or defecation; disturbances in cutaneous sensations; and the constancy or inconstancy of the pain. The pain should radiate along the course of one of the lumbar or sacral nerves in practically every instance and this radiation should be influenced in the majority of cases by any straining effort. Disturbance in sensation, symptomatic, will often be present over the buttocks and lateral or posterior surface of the affected thigh but, due to the overlapping of the cutaneous sensory nerve supply, this symptom may not be demonstrable by neurological examination. The pain will usually be constant but will vary greatly from time to time, and will often be affected by changes in the climate. Partial remissions do occur, but with recurrence of symptoms they are usually more severe. The patient may state that he gets relief in a standing position, or that he is relieved when lying down; this is not constant in every case. In certain cases, there may be definite neurological findings such as "saddle" anesthesia, paraplegia, and so forth, but this is not the usual occurrence.

The patient should be given a complete physical examination and should be carefully checked for any nutritional disease or any of the other conditions noted previously in this paper, because they may mimic some of the findings of herniated intervertebral disc. A neurological examination should be done, and there are some rather characteristic findings. The patient will often stand with a list of the affected side and walk with a limp favoring the extension of the affected thigh. There may be flattening of the buttock due to some relaxation of the gluteus muscle and a lowering of the gluteal fold of the affected side. There will often be some atrophy by measurement of the affected thigh. There should be no shortening of either extremity. The dorsalis pedis pulse should be present and bilaterally equal, and the temperature should be equal in both extremities. The sensations—sharp, dull, hot and cold—may be impaired but, if so, will be vague and not limited to any anatomical area. We have found in several instances a symptomatic numbness of the thigh, which could not be proven by examination. Examination to eliminate sacro-iliac disease, rupture of a sacro-iliac cartilage, hip-joint disease and fibrositis of the ilio-tibial band should be done. One cannot depend upon these tests for clinical conclusion as they may overlap. Thus a patient with hip-joint disease may give a positive Ober's or sacro-iliac sign in addition to the diagnostic sign. The straight-leg raising test and Kernig's sign are most important and are often positive in these lesions on the affected thigh. Reflexes are usually normal and equal but may be exaggerated. A peculiar phenomena is the nearly constant diminution or loss of the Achilles' reflex of the affected limb; this sign is best elicited by having the patient stand on his knees on an examining table and face the wall. An examination of this type, along with the history, will give one an opinion whether or not the symptoms are due to an intervertebral disc herniation, or compression of a nerve root by some surrounding structure.

Our routine spinal puncture study is to put a needle in the area between the second and third lumbar spines, introducing it into the subarachnoid space, attaching a manometer and taking the spinal fluid pressure reading. A Queckenstedt test is done to rule out any obstruction along the cord proper. Another needle is then introduced into the sacral hiatus extradurally. Into this needle, 40 cc. of 2 per cent procain, in 10 cc. amounts, is injected and the manometric pressure noted. This test was devised by Dr. J. G. Love, at the Mayo Foundation, and has been suggestive in three of our cases. If there is a complete or partial block between the caudal and lumbar needle, the manometric pressure will rise slowly, slightly or not at all. After this test, we send a specimen of the spinal fluid to the laboratory for cell count, globulin, Kahn, gum mastic curve and total protein determination. The total protein content has been emphasized by some authors as being elevated in cases of herniated intervertebral discs, but all of our cases have been in the range of normal.

After the patient has recovered from the above procedure, if the findings are of sufficient weight, the patient is sent to the X-ray room and placed on the fluoroscopic table which is equipped with facilities

for any change of position of the patient. A spinal puncture is now done between the second and third lumbar vertebrae and, by means of a large-bore spinal needle and warming the solution of lipiodol, 4 to 5 cc. is injected into the subarachnoid space. The above procedure is not difficult, but a great deal of care is necessary because it is tedious to force the viscid lipiodol through a needle and not change the original position of the needle. We have seen a case in which the lipiodol was injected partially extradurally, and not only was the opportunity lost for immediate localization of a lesion, but also was lost for future examination in this area for some time. It is, in our opinion, most important that fluoroscopic examination be immediately made and, upon localization of the filling defect, X-ray should be made at various angles in this area. Extreme Fowler's position is maintained over-night and repeated X-rays are taken the next morning to determine if the defect is permanent. Physicians, with good cause, hesitate to inject lipiodol into the subarachnoid space because no one has proven what finally happens to this substance. The manufacturers claim that, due to the lipiodinesis, the lipiodol is slowly absorbed from any body tissue, taking from several months to several years. They also state that it does not become encysted in fibrous tissue as do other foreign bodies. Many authors claim no ill-effects of spinal injections of lipiodol (Sicard and J. Forestier, Globus and Strauss, Hampton and Robinson, Lindblom, Mixter, *et al*). It is known that if there is discoloration of lipiodol due to deterioration there may be some accident. Iodism is rare, even in those sensitive, due to the slow absorption of the lipiodol. Air injection has been reported successful in some cases of complete subarachnoid block, but we have been unable to the present time to get sufficient detail for the diagnosis of slight subarachnoidal compression. We have used skiodan and other materials on cadavers and dogs, but up to date we have obtained no definite satisfactory results. We are continuing this line of study in the hope of finding a good contrast media that is absorbed fairly rapidly with no damage to the thecal nerve tissue.

Lipiodol defects in the subarachnoid space may be due to artefact, arachnoiditis, spina bifida with meningocele, spinal neoplasm, hypertrophied ligamentum flava, and occasionally exostosis of the bony canal in addition to herniation of an intervertebral disc. Herniation of an intervertebral disc may occur in any region from the cervical to the sacral area; also multiple herniations at various levels have been reported. Pressure on the cord above the second lumbar vertebra will usually give definite localizing neurological signs due to the complete filling of the bony canal by the cord, and can be located by these findings.

Before operation, the defect found by injection of lipiodol is studied carefully for localization of the lesion and, if possible, relationship to the nerve root. This is of value because, if the lesion is well localized, less lamina will have to be removed for operative visualization. However, we have noted that it does not seem to matter in the convalescing of the patient whether a hemilaminectomy has been performed, or whether only a portion of the lamina on the affected side was removed. The patient is given avertin and ether, or ether anesthesia alone and placed on the operating table in a prone position, with the trunk and lower extremities flexed to approximately an angle of twenty-thirty degrees. Nothing is placed under the abdomen in an attempt to make the lumbar vertebra more accessible, as this does not help but complicates matters by increasing the amount of bleeding. After the routine preparation, a curved incision is made to the left or right of the spine, extending from the spinous process of the second lumbar vertebra to the sacrum. The spinous processes and laminae are exposed in the usual manner along with the upper part of the sacrum. The spinous process of the vertebra just above the lesion is removed along with the lamina on the affected side. In removing the lamina, the continuation of the ligamentum flava anteriorly is preserved for two reasons: first, to use as lateral traction in exposure, and, second, it prevents one from tearing any blood vessels over the cord which may be greatly enlarged. After the lamina is removed, the ligament is carefully incised and the dura exposed. Palpation will then usually reveal a semispherical mass which feels like and has the consistency of, a hard rubber cork. Lateral traction is then made on the ligament, and the cord, with dura intact, is gently displaced to the opposite side. Great care is necessary in this maneuver as there is a rich plexus of blood vessels around the dura which are easily torn and bleed freely. If bleeding is incurred, some time will be lost in controlling the hemorrhage. When a lesion is visualized,

it is well to note the relationship to the affected nerve. In some, the nerve may be pushed medially (see Figure I); in others it may be pushed laterally (see Figure VII). The nerve may make its exit almost at a right angle or may travel quite a distance in the canal outside the dura before it passes out its foramen. If the lesion is one as noted in Figure I, it is usually easy to complete the exposure—incise the posterior ligament and the disc will at once present itself. Upon incising the ligament the disc exudes as if under pressure, at first appearing like sebaceous material but later fibrocartilaginous in character. If the lesion is one as noted in Figure VII, it will be necessary to displace the nerve outward and upward before removing the disc. The affected nerves are injected and hyperemic in comparison to the normal pale nerve (see Figure II). The contrast is easily noted. After removal of the disc, one can usually demonstrate a small opening down into the intervertebral space. We feel that this opening fills in with granulation and heals over with fibrous tissue. When all bleeding is controlled, the dura is opened and as much lipiodol as possible removed. We have found that it is practically impossible to remove all the lipiodol present. As in some cases, we have removed considerable fluid and alternated the position of the patient several times. The dura is closed with fine silk. The wound is closed with deep interrupted chromic number two catgut sutures. These sutures go between the presenting spinous processes. A few more interrupted sutures are placed superficially in the sacrospinalis fascia, and the skin closed with interrupted dermal stitches. A rubber tissue drain is left in place for forty-eight hours.

In addition to simple rupture of the intervertebral disc and different relationships of the nerve root, we have found generalized hypertrophy of the annulus fibrosis and ligamentum flava as shown in Figures III and IV. One of these cases also had marked varicosities of the veins around the dura and along the nerve root (see Figures V and VI). In the only case in which we had a narrowed intervertebral space, the lesion was located longitudinally rather than transversely along the intervertebral space. The lesion extended on to each vertebra for a distance of about one-half inch, causing considerable pressure on the cord. This lesion was calcified and it was necessary to resort to rongeurs for its removal.

Case 1.
Lateral view showing straight lumbar spine.

Oblique view showing defect between 5th lumbar and sacrum.

CASE REPORTS

Case 1.—J. W., seaman, age forty. First admission to hospital—January, 1937.

Chief Complaint: Pain in his right hip, radiating down his right leg.

History: The pain has been present for several months, accentuated by walking or on any straining effort. It was first noticed when he arose from a sitting position at which time he was taken with a sudden severe pain in the lower part of his back. Since then it has been constant with periods of remission. There was no history of injury. He was given the usual conservative treatment and also an Ober's fasciotomy was performed with temporary relief of his sciatica. He was discharged after a period of approximately six months and returned on August 4, 1937, with the same symptoms.

Examination: The patient stands erect with loss of lumbar lordosis and marked limitation of the spine in all directions. There was tenderness over the sciatic notch and along the course of the sciatic nerve. There were no sensory disturbances in the lower extremity. The reflexes were normal. There was no atrophy of either extremity.

Laboratory Findings: The routine laboratory work was entirely negative. The reverse Queckenstedt test was normal and the fluid grossly appeared normal. Total protein determination of the spinal fluid showed 40 mgm. per one thousand and a slight reduction in sugar. Lipiodol injection in the subarachnoid space showed a defect in the lower lumbar region.

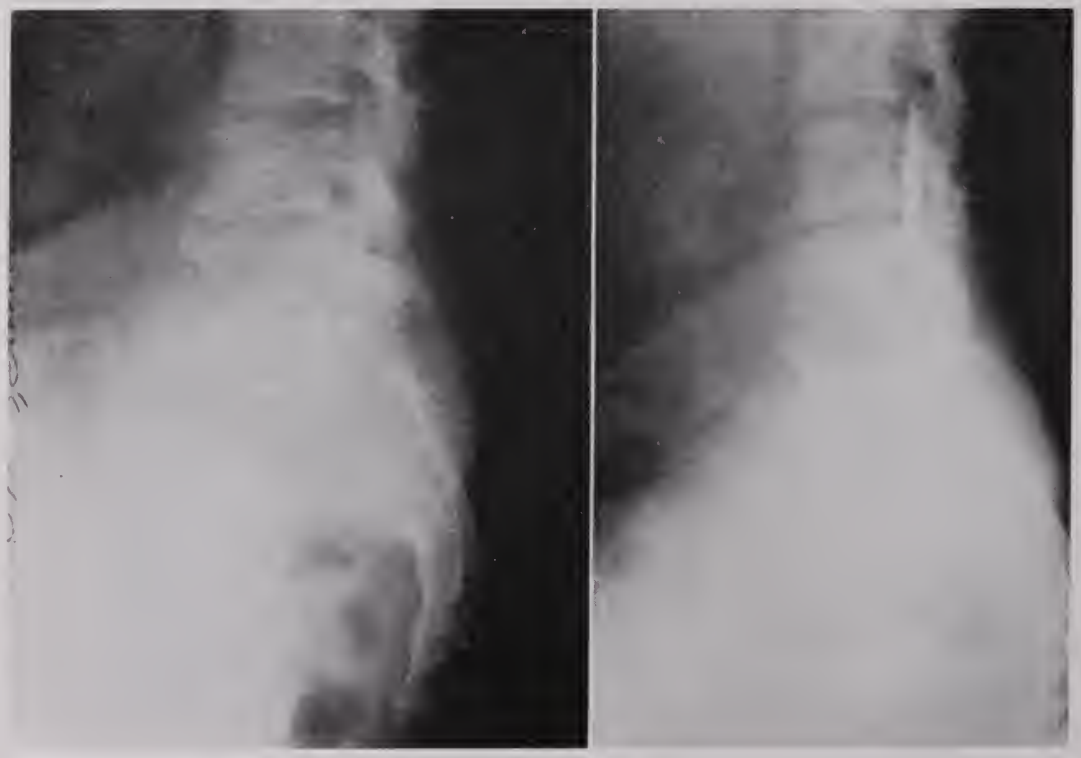
Operation: A definite elevation was found similar to lesion presented in Figure I with the nerve root directly over the herniated disc. The nerve root was hyperemic.

Final Examination: Patient was last seen in February, 1938, four months after operation and had complete recovery. He is now employed in his old capacity as seaman.

Case 2.—J. E., general foreman, age forty-eight. Admitted to hospital—September 13, 1937.

Chief Complaint: Numbness in the lower part of his back, with sharp, shooting pains down the right leg.

History: This patient fell on April 30, 1937, a distance of about four feet, and struck his right hip on a stone. Following this he had considerable



Case 2.

Notice narrowing of intervertebral space and bridging anteriorly between vertebrae.

Lateral view showing long defect. Also demonstrates lesion in midline.

discomfort in his back and was treated by traction on his leg and a body cast. His symptoms improved but the pain and soreness persisted, especially down the posterior part of his right thigh and calf.

Examination: There was a slight scoliosis to the left in the lumbar region with muscle spasm on the same side. Pain was elicited on pressure over the lumbosacral joint. There was no tenderness in either sacro-iliac region. Forward bending caused pain in the region of the lumbosacral joint and a straight leg-raising test caused pain along the course of the right sciatic nerve. There was no atrophy of either extremity. The reflexes were normal and there were no sensory changes present.

Laboratory Findings: The routine laboratory examinations were normal. *X-ray* showed the fourth and fifth lumbar vertebrae had gross lipping of the anterior margins of the articular surfaces with some narrowing of the joint space. A reverse Queckenstedt test was suggestive. Total protein determination of the spinal fluid showed 11 mgm. per one thousand. Injection of the subarachnoid space with lipiodol showed a filling defect in the lower lumbar region.

Operation: A longitudinal defect was found which was removed transdurally. It was calcified and microscopic section revealed annulus fibrosis and nucleus pulposus.

Final Examination: Subsequent examination four months after operation showed only stiffness over site of operation. The patient was playing basketball in his local Y.M.C.A. at regular intervals at this time.

Case 3.—L. B., seaman, age thirty-three. Occupation, oiler. Admitted to hospital—September 3, 1937.

Chief Complaint: Pain in the lower portion of his back, radiating down each leg, especially on the left.

History: This patient gave a history of low progressive back pain for about two years . At first the pain was hardly noticeable, but has gradually increased in severity. It is aggravated by exercise, coughing, any effort or straining. There was no history of injury.

Examination: There was loss of normal lumbar lordosis, with limitation of motion in the spine, apparently due to pain in the posterior part of the thigh. There was no atrophy of either extremity. The reflexes were normal and there were no sensory disturbances.

Laboratory Findings: The routine laboratory examinations were normal. The reverse Queckenstedt test was suggestive. The spinal fluid showed total protein from 22 to 35 mgm. per one thousand. Lipiodol injections showed a defect between the fourth and fifth lumbar vertebrae more marked on the right.

Operation: The patient was operated on October 18, 1937, exposing the cord below the fourth lumbar lamina. There was a generalized elevation and thickened ligamentum flava between the fourth and fifth lumbar vertebrae (see Figures V and VI) with marked engorgement of the veins around the cord. Immediate post-operative convalescence was normal and the patient had complete relief from pain in the left thigh and leg. About ten days following the operation, he began to complain of pain in the right thigh and leg which continued after being out of bed and became very annoying to the patient. He was re-operated on November 29, 1937, and the same findings were found on the right side. Immediate post-operative convalescence was good and the patient obtained complete relief. He was discharged December 21, 1937.

Final Examination: This patient has been seen several times since; the last examination being April, 1938 (five months after last operation) at which time he felt fine, had no neurological findings and was doing hard work as a seaman.

Case 4.—E. W., quartermaster, white, age twenty-six. Admitted to hospital—September 9, 1937.

Chief Complaint: Pain in the back of his right leg which "draws him up".

History: He does not remember exactly, but some time during the summer he developed a soreness in the right upper thigh, posteriorly, with some pain on motion. This has continued to become worse and now, upon straightening the leg or putting tension on the back of the leg in any manner, it causes pain and drawing in the right thigh and leg, posteriorly. He states that when bending his neck forward, it causes pain in the posterior part of his thigh and leg. The pain is aggravated on walking and, after exercise, his foot feels numb. Coughing or any straining effort aggravates the pain. There is no history of injury. The pain disappears while at rest or when in a prone position.

Examination: Negative except that Kernig's sign was positive with adductor spasm and tenderness over the course of the right sciatic nerve.

Laboratory Findings: The routine laboratory examinations were normal. The reverse Queckenstedt test was positive. The total protein determination of the spinal fluid showed 25 mgm. per one thousand. The lipiodol injection of the spine showed a defect in the region of the lumbosacral joint.

Operation: A definite elevation was found with the nerve in direct relation with the lesion. The nerve ran a considerable distance in the spinal canal outside the dural sheath before emerging from the vertebral foramina.

Final Examination: Patient last examined in March, 1938, and no evidence of any abnormality found. He was seen at the hospital in April, at which time he stated that he was doing his usual work now without inconvenience.

Case 5.—C. B., structural iron worker, white, age forty-one. Admitted to hospital—November 1, 1937.

Chief Complaint: Pain in left hip and leg for past fifteen days.

History: For the last few months, he has noticed that the lower part of his back was aching a little and that it radiated down into his left hip. This pain gradually went down the back of his leg to his heel; he describes the pain as dull, aching in character and that it is worse in the morning when he first gets up and at night after a day's work. Sitting or lying down in one position seems to make it worse. Damp weather also aggravates it. He also states that he has had a numbness in the anterior thigh for the past year and has had repeated attacks of this same trouble during this time. The pain he complained of at first examination was localized over the lower part of his back on the left side and below the posterior crest of the ilium. He also complained of numbness of the leg below the knee along the outer side.

Case 5.
Oblique view showing defect between 5th lumbar and sacrum.

Examination: The patient stands erect with a normal lumbar curve and free motion of his spine. The left buttock appears more relaxed than the right and the left gluteal fold is lover. There is pain and tenderness down the posterior surface of his thigh and leg. There are no demonstrable areas of anesthesia of the skin in the lower extremity. There is tenderness over the gluteal plexus on the left. His knee-jerks are equal. The Achilles' tendon reflexes are equal. His left thigh is one inch smaller than his right, ten inches below the anterior superior spine. Kernig's sign is positive with adductor spasm on the left.

Laboratory Findings: The routine laboratory examinations were normal. The reverse Queckenstedt test was normal. Spinal fluid appeared clear, with 24 mgm. per one thousand of total protein. Lipiodol injection showed a filling defect on the left side, on a level with the lumbosacral joint.

Operation: A definite herniation of the disc was found in this case lying in the axillary fold between nerve root and dura (as demonstrated in Figure VII).

Final Examination: The patient was discharged about two months after the operation and, at that time, all signs and symptoms had disappeared. An indirect report was received that he was back working as a structural iron worker but he has not yet returned for final examination.

Case 6.—W. M., U. S. Employees' Compensation Commission case, age thirty-six; occupation—painter. Admitted to hospital—November 30, 1937.

Chief Complaint: Pain in his back.

History: On June 7, 1937, while moving a large cabinet, patient suddenly felt a very sharp pain in his left lower back which he described as "something were pulling loose". He fell on the floor and remained there for some time because of the severe

Case 6.
Showing defect between 5th lumbar and sacrum. (Notice elevation and compression of the axillary fold on the left side.)

pain. Since then, the condition has resisted treatment and continues as a dull aching pain in the left lower back, radiating up and down the spine and down his legs to his heels, more noticeable on the left. He also complains of peculiar numbness and anesthesia in his hands and feet. He claims that he is losing grip in his left hand and, at times, his left leg is weak. He is very nervous and has been having headaches for the last few weeks. All of the above symptoms have become progressively worse in the last few weeks. He complains of numbness along the outer side of his left thigh and states that the pain is aggravated on coughing or any straining effort.

Examination: The patient stands with a slight list to the left and some curvature of his spine. The motion of his spine is guarded in all directions and he states that it is painful especially on bending forward. There are no particular tender areas. Kernig's sign is positive on the left with some adductor spasm. The knee-jerks and ankle-jerks are equal and active. There are no areas of anesthesia in the lower extremity, and both extremities are of the same size.

Laboratory Findings: The routine laboratory examinations were normal except for positive Kahn and Kline. A reverse Queckenstedt test was suggestive. The spinal fluid showed 25 mgm. per one thousand of total protein. Lipiodol injection showed a filling defect on the left side in the lower lumbar region. X-ray also showed that there were six lumbar vertebrae present.

Comment: This patient had been examined by several physicians and has had diagnoses from back strain to malingering.

Operation: A large elevation was found in this case in direct relationship with the nerve root (demonstrated in Figure VIII).

Final Examination: After the operation the patient had complete relief of all symptoms and examination showed only stiffness of lower lumbar region at the site of the operation. On March 15, 1938, he was re-admitted because of a mild persistent right sciatica. The left side had caused no trouble since operation. X-ray examination showed a collection of bismuth in the region of the right sciatic notch. It is, of course, questionable as to the possibility of sciatic irritation from this bismuth but as this was a possibility the patient was discharged to return for further check in sixty days.

Case 7.—L. C., U. S. Employees' Compensation Commission case, age thirty-three; occupation—longshoreman. Admitted to hospital—January 9, 1938.

Chief Complaint: Pain in the lower part of his back, radiating down his left leg.

History: This patient suffered an injury on July 19, 1937, when he fell twenty feet on a boat and landed on his feet and fell backward. Since then, he has been able to work only about six weeks and was forced to quit on account of pain in his back, radiating down his left leg. He states that the pain at first was only slight, but since the injury it has increased daily and that now it is sharp, shooting in character, aggravated on bending forward or when he attempts to lift anything. It is also aggravated when straining at stool or coughing and sneezing. He also complains of sexual impotency. He has had the usual conservative treatment with manipulation for sciatica.

Examination: The patient stands erect with some apparent atrophy of the left lower extremity and buttock. There is some muscle spasm of the lower back, with no curvature of the spine. Pain is elicited on motion of the spine and begins at about thirty degrees forward flexion. It is localized opposite the

Case 7.

Anterior posterior view showing defect between 5th lumbar and sacrum.

Oblique view showing defect at lumbo-sacral region.

third lumbar vertebra and radiates down his left thigh. Limitation of motion in the spine appears to be due entirely to the pain and spasm in the posterior part of his left thigh. Measurement of each thigh showed one-half inch atrophy in the left, at the same level. All reflexes were normal and equal. The patient complained of numbness along the outer side of the left leg, but there was no definite area of anesthesia demonstrable.

Laboratory Findings: The routine laboratory examinations were normal. The reverse Queckenstedt test was normal. The spinal fluid appeared grossly normal, with total protein of 24 mgm. per one thousand. Lipiodol injection of the subarachnoid space showed a large filling defect on the level of the lumbosacral joint.

Operation: A herniation of the intervertebral disc was found with the nerve root lying directly on top of the lesion. It was under the first sacral vertebra.

Final Examination: He was last examined in the latter part of February, 1938, at which time there was only slight pain over the incision and some lower lumbar stiffness. He has returned to his usual work.

Case 8.—C. H., veteran, age forty-three; occupation—chauffeur. Admitted to hospital—January 3, 1938.

Chief Complaint: Pain in the back and legs.

History: For many years the patient has had a sore back whenever he had a cold. Since December 20, 1937, his back symptoms have increased greatly until he is not able to sleep at night. He states that his legs feel weak and numb and that there is no position in which he can lie down where the pain is relieved. Pain is severe when he strains at stool, upon coughing or any straining effort.

Examination: Essentially negative except there was a diminution of the knee-jerks and an Achilles' tendon reflex on the right lower extremity. Measurement at the same level on each thigh showed one-half inch atrophy of the right thigh.

Laboratory Findings: The routine laboratory examinations were normal. The reverse Queckenstedt test was normal. The spinal fluid appeared normal grossly. The laboratory reported 23 mgm. per one thousand of total protein. Lipiodol injection showed a filling defect in the lower lumbar region.

Showing a normal A P view with the use of lipiodol in a cadaver.

Showing a normal lateral oblique in a cadaver.

Operation: A definite hypertrophy of the ligamentum flava over the fifth lumbar nerve root with compression of the same. Following the operation, all pain left the right extremity and hip. Three weeks later a pain developed over the left hip and down the left thigh. Re-operation and exploration of this side showed no gross pathology and the fourth and fifth lumbar nerves were unroofed.

Final Examination: The pain at the present time is still slightly noticeable on the left side and seems to be localized over the left sacro-iliac joint. An injection of this joint with procaine and saline on

No. 1. Specimen removed from case No. 10.
No. 2. Specimen from case No. 6.
No. 3. Specimen from case No. 5.

April 30, 1938, provided complete temporary relief.

Case 9.—L. T., age forty; occupation—fireman. Admitted to hospital—January 10, 1938.

Chief Complaint: Pain in the lower part of his back, radiating down his right leg.

History: The patient had had symptoms for the last eight months, with pain in the lower lumbar region radiating down his right leg. He has had conservative treatment consisting of physiotherapy, nerve injections and a thorough check for foci of infection. There is no definite history of injury in this case, but patient thinks this might have occurred while lifting and pulling on a heavy fire hose. His pain is always worse during damp weather.

Examination: The patient stands erect with no loss of lumbar lordosis. There is a slight scoliosis to the left in the mid-thoracic region. Straining causes radiation into the right buttock. There is spasm of the lumbar muscles on the right. Pain is elicited in the right gluteal region on forward bending at about thirty degrees flexion. There is slight relaxation of the right buttocks with the gluteal fold lower on the right side. Flexion of the right hip causes slight pain with exaggeration of pain on extension of knee. This is not elicited on the left side. All reflexes and measurements normal. Flexion of the neck on the chest causes no pain. Kernig's sign negative. No evidence of hip-joint disease. There is no localized tenderness over the sciatic nerve on either side. No areas of anesthesia present. Dorsalis pedis artery is palpable in each foot.

Laboratory Findings: The routine laboratory examinations were normal. A reverse Queckenstedt test was normal. Total protein determination of the spinal fluid was within normal limits. Lipiodol injection showed a filling defect in the lower lumbar region.

Operation: Revealed a very definite herniation of the nucleus pulposus through the annulus fibrosis on the right side displacing the fourth lumbar nerve posteriorly and upward.

Final Examination: Convalescence was uneventful and examination on discharge, March 12, 1938, revealed only stiffness of the back over the operative site. He is now on regular duty as a fireman.

Case 10.—M. K., seaman, age fifty-six. Admitted to hospital—February 4, 1938.

Chief Complaint: Pain in left hip, moderate, radiating down his leg.

History: On December 20, 1937, patient first had an attack of pain which began in left hip and radiated down the left leg, lasting about ten days. It was continuous and he described it as more of a dull ache and soreness. About two weeks ago, the same pain returned and has been present ever since. He described the pain at this time as severe aching pain, which is worse when he is up and moving around. There is no history of injury.

Examination: On further questioning the patient, he stated that he had had a numbness in his left leg for the last year. He stands erect with loss of lumbar lordosis; the lumbar spine is stiff. There is slight tenderness over the sacro-iliac region on the left. Motion in the hip-joint is markedly limited and painful. There are no areas of anesthesia. The knee-jerks are slightly less active on the left. The Achilles' tendon reflex is markedly diminished on the left. There is no adductor spasm and complete flexion of the thigh gives relief of pain.

Laboratory Findings: The routine laboratory examinations were normal. The reverse Queckenstedt test was normal. Total protein determination of the spinal fluid was 21 mgm. per one thousand. Lipiodol injection showed a filling defect on the left side in the lower lumbar region.

Operation: Revealed a herniation of the nucleus pulposus displacing the fifth lumbar nerve on the left side posteriorly. The nerve was hyperemic at this point. Convalescence was slow but uncomplicated.

Final Examination: Since the day after the operation, the patient has had absolutely no pain except for slight stiffness over the site of the operative wound. Examination on May 13, 1938, revealed no pain over the course of either sciatic nerve or in the back. There is some slight stiffness over the area of operation. There is no tenderness over the spine nor over the area of operation. Flexion is normal for a man of this age. There is no limitation of motion of the spine in any direction and the spine is perfectly straight; no scoliosis. Discharged, fit for duty.

Case 11.—R. E. B., U. S. Employees' Compensation Commission case, white. Admitted to the hospital July 26, 1937.

Chief Complaint: Pain and aching over the lower back.

History: This patient gave a history of injury

when lifting a heavy boat in 1932. He was suddenly taken with pain in the lower mid-lumbar region which did not radiate. He had various types of conservative treatment and, for the next two years, he performed his usual duties except for occasional backache in damp weather. In January, 1934, he suffered a similar injury and, despite heroic conservative treatment, he did not become ambulatory for three months. Similar injuries were incurred in August, 1936, and July, 1937, and in between these periods he received, in addition to medical treatment, manipulation by a chiropractor, which treatment relieved him for a few days.

Examination: Completely negative except there is some deep-pressure pain over the left buttocks in the region of the sciatic notch.

Laboratory Findings: The routine laboratory work was completely negative. Total protein was 25 mgm. per one thousand. The reverse Queckenstedt was suggestive. Lipiodol injections showed a deformity on the right side in the region of the fourth lumbar spine. The patient was discharged at this time for a period of ninety days. He returned again in March, at which time the pain had become more localized over the right buttocks and occasionally radiated down the right posterior thigh. Reexamination showed the defect that was previously observed to be still present.

Operation: Showed a very definite hypertrophy of the ligamentum flava compressing the fourth right lumbar nerve. This nerve was hyperemic.

Final Examination: Convalescence was uneventful except for slight secondary anemia, and final examination on discharge showed complete relief of all pain except stiffness over the operative site. We advised sixty days more convalescence. It is believed that this patient should get complete relief from all his previous trouble.

Case 12.—J. C. K., truck driver, white. Admitted to the hospital February 18, 1938.

Chief Complaint: Pain in lower back radiating down the left leg.

History: First occurrence of low back pain was in 1922, which continued with remissions until 1935. At this time he noticed there was a very definite radiation of the pain down his left thigh, posteriorly. He had chiropractice treatment in 1926 and some transitory improvement. The sciatic pain was first noticed only above the knee but lately goes down the posterior surface of the leg. There is no disappearance of sensation and there is no history of injury. Sneezing, coughing and straining cause radiation of the pain down the course of the left sciatic nerve. After spinal puncture here, the symptoms became somewhat aggravated. The pain is not affected by changes of weather.

Examination: The patient stands with a list to the right with loss of lumbar lordosis and a slight scoliosis of the dorsal spine. There is tenderness over the left sciatic notch. The left gluteal muscles appear relaxed and there is slight spasm of the left lumbar sacro-spinalis muscles. Anterior flexion of the spine is limited to twenty-five or thirty degrees. Measurements for atrophy or shortening were negative. Sensation was normal, no ankle clonus, no Babinski, knee jerks equal and the Achilles' tendon reflexes were equal.

Laboratory Findings: X-ray showed the fifth lumbar vertebra was sacralized by means of its left transverse process. The reverse Queckenstedt test was suggestive. The spinal fluid was grossly negative. The total protein was 30 mgm. per one thousand.

Operation: Showed a definite elevation in direct relationship with the fourth lumbar nerve root between the fourth and fifth lumbar vertebrae. There was also slight thickening of the ligamentum flava in this area.

Final Examination: Convalescence was uneventful except that the patient suffered excruciating root pain for three days but, after this subsided, he said the only discomfort he had was a slight soreness over the operative site. He was discharged on March 26, 1938, at which time examination showed only limitation of motion of the spine due to stiffness. One month later, patient was examined and found to have complete relief.

SUMMARY

These conditions are certainly worthwhile to keep in mind. Heretofore we have treated patients with low back pain and sciatica for months and have had them return often with exacerbation of symptoms. We feel that conservative treatment should be given a trial but not too long as most of these patients are laborers and their financial condition will not allow long periods of treatment. It has been observed, especially when they are having financial trouble, that a large psychic element intervenes and it may

lead one to label the cases as neurotics or malingerers.

The outstanding subjective symptoms may or may not be the history of minor injury, such as fall on buttocks or repeated discomfort in back while lifting in bent-over position which suddenly becomes severe and radiates down one leg or the other. This may come on at once or there may be a latent period. Another common subjective complaint is numbness in some part of the extremity. The common objective findings are the straight lumbar spine, pain elicited on forward bending, positive Kernig sign, atrophy of thigh, loss or diminished Achilles' tendon reflex and tenderness over the sciatic notch.

The post-operative results are most gratifying in these cases and the patients themselves marvel at their sudden relief of pain. All of our cases have had complete relief of pain the following morning except in one instance when it was aggravated for a period of three days. It has been our practice to keep these patients in bed for ten to fourteen days on an air mattress. Their activity is not limited and they are encouraged to move about in bed. Following this, they are given daily salt baths for five days and started on exercises to remove the residual stiffness in the lower back. They are then discharged from the hospital to return to duty in sixty days and are advised to return before the end of this period for final check. All of our cases have returned to duty except in two instances.

Within the last six months we have operated on sixteen cases, these being in a general hospital averaging approximately 400 patients, so you can see that the condition is probably more common than expected. On the other hand, we see many cases of low back pain and, if a check is made, it is our opinion that the percentage falling into this group would be small. We feel it is not necessary to inject lipiodol promiscuously into the spinal canal. To make the diagnosis, a careful history and physical examination will usually suffice, finally to be proved by lipiodol injection. We have injected eighteen cases for this condition and have found lesions in sixteen which were proven at operation. We have had no case in which there was any complication from the spinal injection of lipiodol and, although we have tried air and other substances, we are not able to confirm their value in this condition at the present time.

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BODY WEIGHT AND HEMOGLOBIN CONCENTRATION.

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INTRODUCTION

The normal range of blood-hemoglobin concentration depends to some extent on age, sex, climate, and certain physiological conditions. There are other factors which influence the hemoglobin concentration, but these are the ones usually considered by investigators attempting to establish normal hemoglobin standards.

Only a few investigators have considered the possibility that hemoglobin concentration may be dependent on body size. Wintrobe (1930) has treated data on normal men and women statistically; he found only a slight positive correlation between hemoglobin concentration and body size. Powers and co-workers (1930), in reporting hemoglobin values on dogs, divided their animals into three groups according to body weight; the average hemoglobin values increased with the average weights of the groups. Rosahn and co-workers (1934) have remarked that the hemoglobin values in their heavier breeds of rabbits were lower than in their smaller breeds of rabbits. Because of the scarcity of reports, I considered this subject worth further investigation.

This paper deals with the relation of body weights to hemoglobin concentration in men and rabbits.

EXPERIMENTAL

The men used in this investigation were students enrolled in the pharmacy, dental, or medical schools. The rabbits used were of two breeds—Himalayan and an albino type of rabbit obtained locally.

The weight of the rabbits, and the height and weight (both without shoes) of the men, were taken. Two kilograms were deducted from the weight of

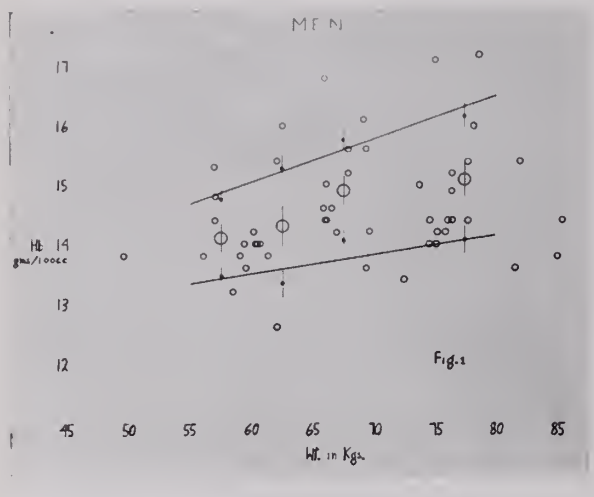

Fig. 1.—Hemoglobin concentration is plotted against body weight (small circles). The large circles represent the mean values of each of the classes (see text). The points above and below each mean value represent the mean plus and minus the standard deviation, respectively. The fine vertical lines represent the standard errors of these values.

each man as correction for the weight of clothing.

The blood samples were obtained from freely-flowing finger punctures in the case of man; the first drop was always discarded because of possible dilution by the tissue fluid. With the rabbits the blood samples were obtained from the ear veins.

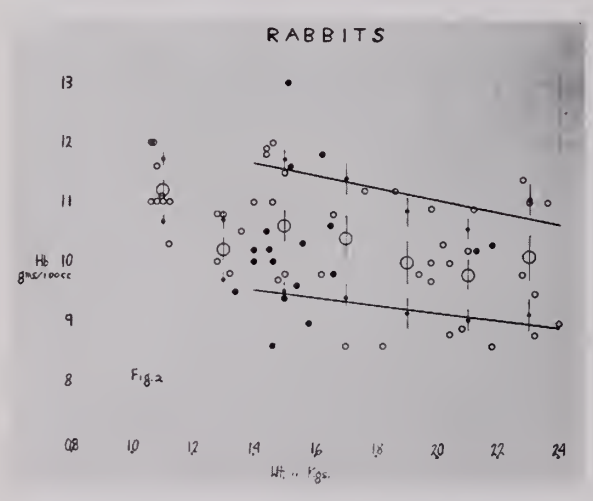

Fig. 2.—This figure is constructed in the same manner as Fig. 1. The hemoglobin values obtained on the albino rabbits are indicated by small circles; those on the Himalayan rabbits, by solid circles.

Hemoglobin determinations were made with a Sahli hemoglobinometer. Calibration by means of blood oxygen determination using the Van Slyke apparatus gave the following results: The average of six readings with the Sahli instrument on a sample of blood was 15.6 gms./100 cc.; the average of two readings with the Van Slyke apparatus showed the sample to contain 15.5 gms./100 cc. The Sahli instrument was therefore assumed to give true readings.

Results

Figures 1 and 2 show the hemoglobin values of the men and rabbits plotted against their body weights. Also certain statistical values are shown in these figures. These were obtained by grouping into classes the values lying between each five kilogram range of weight for the men or between each 200 gram range of weight for the rabbits. For each of these classes the mean values of hemoglobin are indicated by large circles. The standard deviations are indicated above and below the mean values by small solid circles. The fine vertical lines drawn through the mean values and also through the points indicating the standard deviation represent the standard errors of these values. The heavy lines through the points representing the standard deviation were drawn from observational equations calculated to fit these points.

Discussion

Reference to the figures shows that there is a wide scatter of hemoglobin values at any given weight; hence the hemoglobin concentration itself should not be considered as a true function of the body weight. Evidently at any given weight there exists a distribution of hemoglobin concentrations. And it is in the possibility that this distribution of hemoglobin values varies with body size that we are interested.

In any distribution, various values can be used as a measure of that distribution. The mean value, for example, could be used; however, this has the drawback that it gives no information about the shape of the distribution curve. In order to have values which would fix both the position and shape of the curves I have used the mean plus the standard deviation, and the mean minus the standard deviation as values with which to correlate body weight. It is through these points that I have drawn lines from calculated observational equations.

In the case of man (see Fig. 1) lines drawn through the values for the mean plus one standard deviation and through the values for the mean minus one standard deviation, both show a positive slope. That is, the region of distribution of normal hemoglobin values shifts toward higher concentrations as the body weight increases. (It is to be noted that no statistical values are given for the class comprising

body weights between 70 and 75 kilograms; the numbers of subjects falling in this range are apparently too few to have any great significance.)

Before considering the relationship suggested in the case of rabbits, it should be pointed out that not all of the data shown are included in the analysis. The data on rabbits weighing less than 1.4 kilograms are shown in the figure, but these values were not included when the observational equations were calculated. The rabbits below 1.2 kilograms were definitely immature; those between 1.2 and 1.4 kilograms were border-line cases. Because the blood picture of adult and immature animals is in general considerably different, I was uncertain as to the justification of including these in the analysis. I have plotted them in the figure as a matter of record. Also it should be pointed out that although the majority of the animals included in Figure 2 were males, females were also included; for the weight of evidence in the literature suggests only a slight or possibly no difference between the sexes of rabbits in regard to their hemoglobin values.

The relationship shown in the case of rabbits is the reverse of that for man; the region of distribution of normal hemoglobin values appears to decrease as body weight increases.

My findings for both men and rabbits receive support from the literature which I have mentioned in the introduction. There remains for consideration the possible significance of this relationship that I have found. Without accurate knowledge of all the factors responsible for fixing hemoglobin concentration at any given body size, it is difficult to give any clear statement. Probably several of these factors vary with body size; and it is therefore not surprising that hemoglobin concentration also varies with body size. Probably no greater significance should be attributed to this relationship at the present time.

SUMMARY

1. Data are presented to show that the range of normal hemoglobin concentration varies with body weight in both men and rabbits.

2. The findings are briefly discussed.

NOTE: I am indebted to Miss M. K. Cary for the Van Slyke determinations.

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ANOMALIES OF THE FEMALE GENERATIVE ORGANS—WITH REPORT OF A RATHER REMARKABLE CASE.

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In order to give color to the report of this case it seems pertinent to give a bit of history on these conditions.

The uterus and vagina are formed by union of Müllerian ducts, from below upwards.

Failure of fusion of the Müllerian ducts leads to conditions which very much complicate labor.

The fused portions of the Müllerian ducts form the uterus and about four-fifths of the vagina.

The cervix at first grows much faster than the uterus, so that at birth it comprises at least two-thirds of the entire uterus. Even at the eighth month of fetal life the cervix is about three times the size of the uterus.

There are a large number of case reports on congenital anomalies of the female genitalia. All congenital anomalies of the genital tract are due to malformation. One of the most frequent is double uterus. It is stated on authority that some anomaly of the genital tract occurs in about 1 per cent of all cases. The extent of abnormality depends on the degree of failure of fusion of the Müllerian ducts. When the walls between the two ducts remain completely intact there results a double uterus, double cervix and double vagina; this is known as *uterus didelphys,* or bicornate uterus. When there is an arrest of development of the uterine portion of one duct the condition is called uterus unicornus. It is be-

lieved now that the condition is much more frequent than was supposed.

But one thing is certain: These congenital abnormalities are the cause of very serious consequences in both mother and child, and should be carefully looked for by the obstetrician. When there is a patulous or permeable Fallopian tube and healthy functioning ovary, although a small uterus, pregnancy may occur and go on to successful fruition. And right here let me cite a case of mine:

A young woman about eighteen who was suffering from dysmenorrhea and poorly developed external genitalia, came to me for relief. I dilated the vagina and cervix. Finding the uterus very small, I went in the abdomen and found the ovaries healthy and well developed, as were also the Fallopian tubes. I did nothing with them, but told the little girl on discharging her that I did not think she would ever bear any children. She seemed to be sorrowful and left the office, but answered me in two years or less by giving birth normally to twin boys.

It is believed by Palmer Findley that women with uterus didelphys are usually fertile, and may menstruate during pregnancy—and I venture to say that this menstruation may be coming from the non-impregnated side of the double uterus.

The two halves of a bicornate uterus are not usually symmetrical. Menstruation may come from both uteri simultaneously, but sometimes from only one at a time. Pregnancy may occur in one or both horns; and twin pregnancy has been known to occur in one horn. The question of pregnancy occurring in the two horns at the same time or at different times is open to controversy. Usually pregnancy occurring in one horn goes on undisturbed. The other horn grows and develops a decidua similar to ectopic pregnancy, this decidua being cast out while pregnancy goes on in the other side. The course of the case resembles an abortion, and may lead to a curettement of the pregnant side unless the true condition is known. This was evidently done in the case I will report. Usually, however, the decidua comes away with the lochia. There are, however, cases recorded where, as I have suggested, one side menstruates normally while pregnancy goes on undisturbed in the other. It is claimed that pregnancy in one horn may precede that in the other by weeks or months. In fact, a double uterus may sometimes, I think, explain the case of a superfetation.

A very small per cent of pregnancies in uterus didelphys go to term and are believed to be the cause of inertia, postpartum hemorrhage, retention of the placenta and even rupture of the uterus.

The danger to the child is always great, being frequently born dead. Cesarean section has been performed in many cases and indeed seems to be the most humane treatment. Many cases are reported in which abortions have occurred on one side, curettement having been done without disturbing the other side. There is one case on record where a spontaneous delivery occurred on one side forty days before the baby in the other side was delivered, mother and both babies lived. No milk was secreted after the first child, but after the second child was born she secreted much milk—enough for both babies.

I will now report my case which was one of uterus bicornus duplex—that is, a double uterus with two separate horns fused at the cervix, about the level of the internal os, but with two separate cervical openings and a double vagina or septum.

Mrs. G. A. B., twenty-one years old, a native of North Carolina, who had lived in this vicinity over one year, consulted me March 4, 1938. She was small, but fairly healthy looking, and said she felt pretty good; weight 126; heart-beat 112 but regular and no murmurs; blood pressure 122 over 80; urine normal, and her bowels were regular. Slept poorly but had no nausea; and her appetite was good. Date of last menstruation August 24, 1937. External measurements were: Interspinous 20; intercristal 26; bi-trochanteric 32; external conjugate (Baudelocque) 19 cm.

Past History: Menstruation free but otherwise normal. Had a miscarriage one year ago; was very sick, and was curetted at Old Point by a naval surgeon, who told her she had a double uterus—she was six weeks pregnant.

History of Present Pregnancy: Had much nausea during first months; went to St. Vincent's Hospital and took the "rabbit" test. Was given corpus luteum, also glucose intravenously; finally left the hospital and went down home to her mother. She was treated by tablets of corpus luteum, and after a short time got over her nausea and had no further serious trouble. She was pretty large but had no other discomfort. I did not diagnose twins, made no vaginal examination, and she did not tell me a thing about having two vaginas, although told to do so by both the naval surgeon and Dr. W. L. Taylor, of Virginia Beach, who treated her for nausea in the early

months. When she was at the office March 28, urine was normal; weight 133; had some pain in back and a feeling of general discomfort; but nothing serious. She came back April 13, suffering with a constant pain in abdomen and back, with some nausea and vomiting; urine was normal, and blood pressure was 140/90. I sent her home and to bed and gave her codeine. She slept well all night without pain but was still very tender in left lower quadrant of abdomen which was hard and tonicly contracted and was bulging very much towards the left—rounded and hard. Rectal examination revealed a soft mass which was tender; cervix was dilated slightly and soft. I then diagnosed twins with possibly a double (or bicornate) uterus. Blood pressure was then 160/100; urine negative; pain was constant, i.e., not intermittent; nausea was better. I sent her at once to the hospital and tried to get an X-ray but the symptoms became so violent I was afraid of a ruptured uterus so decided to perform a Cesarean section and had her prepared at once.

Examination, abdominal and rectal, showed there were two babies in there, the one on the left being a breech, the one on the right a vertex; fetal sounds were plainly heard on both sides. The baby on the left side was a frank breech and in anterior position, and the os was dilated two fingers. She was thoroughly prepared under anesthesia; and after she was thoroughly relaxed, vaginal examination confirmed the diagnosis, i.e., double vagina, double uterus with a living baby in each side, seven and one-half months intra-utero gestation. The os through the left vagina was dilated three fingers, and was soft; the membranes had ruptured and the cord was prolapsed but pulsating. The os through the right vagina was dilated only large enough to introduce the tip end of the index finger. I could feel the bag of water bulging and the head, but there did not seem to be any contraction of this side.

I then did the classical Cesarean section, opening the left side first and extracting by his feet a boy weighing four pounds five ounces; there was not much bleeding; but for fear of bleeding and fearing to give pituitrin on account of the danger to the other baby, I opened the right side by parallel incision and delivered the baby from this side, weight four pounds two ounces. Pituitrin was then given and in a few minutes the placentas came away by the Duncan method. Transfusion was given of 500 cc. of previously matched blood. Bleeding was of small consequence. The incisions in the uterus were closed with chromic catgut and the operation completed in the usual way. Babies were resuscitated easily, cried lustily, and the mother went on to recovery with only a little temperature the second and third day. She had little or no milk, however, and the babies were so small and weak—being six weeks premature—that no attempt was made to have her nurse them. After a few days quiescence they began to gain—though they were kept at the hospital three weeeks after the mother had gone home. Each weighed five pounds and eleven ounces and gained even faster after going home, the mother taking great pains with them, and being very proud of her accomplishment.

I have a supplemental report to make on this case, which, though I somewhat regret the necessity for it, yet the patient was very grateful.

Although I did not have the consent of the woman to sterilize her, yet thinking it wise, and knowing she would give her consent, I crushed and ligated both tubes with No. 2 chromic catgut. After she recovered from the operation a month or six weeks she asked me what precautions should she take to prevent becoming pregnant again, that she did not want to have any more children if she could avoid it. Then I told her what I had done, and I did not think she need take any precautions for some months to come, if ever. She took me at my word. She menstruated from the first, and in about four or four and one-half months was pregnant again. She was, however, toxic from the first and there was no let up. Corpus luteum, liver extract intra-muscularly, glucose intravenously, diet, drugs, all were tried, and still she vomited. She was so depressed she swore she was going to start something herself if something was not done for her. I consulted with two of my confreres and all concluded it best to perform a therapeutic abortion and sterilize her at the same time. She was about two months pregnant. I went in the abdomen October 12, 1938, found one side of the uterus larger than the other—the right—which I incised and curetted out the contents. Then by running my finger down into the cervix, I found that the two sides of the uterus fused within the cervix. I had found this out, however, before she became pregnant. I found the left side was also pregnant, though not as far advanced as the larger side. So by splitting up the septum a distance of an inch I easily curetted this side. I then ligated, cut, and buried the ends of the tubes and finished the operation in the usual way.

She had no trouble and is now in good health.

I will report two more cases occurring within the last month which might be considered anomalous. One was a second Cesarean on a woman who two years or more ago was sectioned for having a uterus that would make no effort to expel its contents after going three weeks over time. A low section—transperitoneal—was performed, and a large normal baby delivered. The same thing occurred this time; the woman would *not* go into labor; the head was jammed down in the pelvis but would not budge. I sectioned her the second time, doing the classical operation on account of adhesions.

On November 16 I performed Cesarean section on a woman—second pregnancy—this time twins, both babies in the breech presentation.

She had the following history: Her father had dorsal Pott's when a young boy; she herself had pulmonary tuberculosis and had been to Catawba Sanatorium (eight years ago); she had an abortion in January, 1938, and became pregnant again immediately afterwards, suffering a great deal the whole nine months following. Her pulse was over 100, but she had no fever. X-ray showed twins, both being in the breech presentations; the one on the left—a frank breech in the left sacro-anterior position—seemed to be jammed down in the pelvis, but there was no dilatation of the cervix and the woman had no pains, i.e., labor pains. With the history of her weakened condition, and pulse becoming more rapid, we concluded a Cesarean section was advisable and did a classical operation November 16; the mother and twins all did nicely and returned home from the hospital November 27.

A great many anomalous cases are seen in the gynecologic clinic at St. Vincent's Hospital—reaching over a period of about forty years; but they would add very little to our knowledge, being mostly of the same type as reported in the standard textbooks and journals.

256 Granby Street.

PRELIMINARY REPORT ON DR. ALEXANDER FINIKOFF'S TREATMENT FOR SURGICAL TUBERCULOSIS—WITH A SUMMARY OF 14 CASES.*

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Suffolk, Virginia.

While in Paris during the summer of 1935, I heard of a Dr. Alexander Finikoff, a Russian physician exiled there, who it was reported was treating cases of surgical tuberculosis and showing a record, covering several hundred cases over a number of years, of 80 per cent of recoveries. By recovery was meant arresting of the tuberculous infection, reproduction of new bone, with a complete or nearly complete restoration of function in the affected joints. Frankly, I did not believe this. Through a mutual acquaintance, I met Dr. Finikoff. I was impressed by his simplicity and sincerity, his knowledge of tuberculosis in general, and by certain rather unique specific theories concerning this disease which varied somewhat radically with our own theories. I read his recently published work, which had been presented to the Paris Academy by Prof. Delbet, the well known French Surgeon. Several days were spent going over hundreds of roentgenograms, taken before and after treatment, that showed extraordinary changes in the bones and joints involved. Still skeptical, but with stimulated interest, I remained several weeks with him in his clinics in various hospitals in Paris. Doctor Finikoff is a scientist in the true sense. He has spent many years in experimental work in Russia, later in Paris, where he had an uphill battle to win recognition and support from the surgeons in the profession. He has distinctly won their support under the most adverse circumstances on his results alone. I saw what he was accomplishing and could not help but share his enthusiasm.

Many physicians in the past have offered many so-called "cures" for all types of tuberculosis but no one but the authors have been able to obtain comparable results. I found, by contrast, that other men in France, Russia, Spain and Italy were reporting equally as good results as Finikoff in using his method of treatment. I saw grateful patients with all types of tuberculous joints, hips, Pott's, Charcot's, fistulae, all classes economically, traveling long dis-

*Read before the Seaboard Medical Association of Virginia and North Carolina at Greenville, N. C., December 6-8, 1938.

tances by bus and subway, under their own power, returning regularly for these treatments. They were invariably happy, enthusiastic and grateful for what he was accomplishing in their restoration to normal life. They were improving. This they could see for themselves. Some were almost totally recovered. I saw others entirely well, old sinuses healed and joints with 70 to 90 per cent normal function.

The essential component parts of his method are not new in any sense, nor does the method itself strongly stir the imagination, but Dr. Finikoff, through years of preliminary work, has succeeded in standardizing the technique and dosage in a manner that renders it available to any physician, whether specialist or general practitioner, urban or rural.

The method is based on the results of the work of Henriot, Bergel, Noel Fiessinger, P. L. Marie, Bartel, Roger and Binet, on the lipolytic action of the organs and on the experiments of Professor Metalnikoff on the part played by the lipase in the fight against tuberculosis.

The works of Ramond and of Poulain, of Roger and Binet, of Claude, of Gougerot, of Fiessinger and Marie and of Keyes enabled Dr. Finikoff to proceed to his laboratory and clinical experiments with the treatment by intramuscular or subcutaneous injections of iodized oil, i.e., highly refined and sterilized special vegetable (neutral) oil to which has been added immediately before use a 10 per cent solution of iodine.

The proteolytic action of iodine having been known for a long time past, the researches of Fr. Muller, of E. Fischer, of Abderhalden and those of Eug. Opie and Bertha Burner, of Muller, of Jochmann and of Hedin, as well as personal clinical observations of long duration, decided Dr. Finikoff to combine the injections of oil with iodine in order to increase the very low polynucleosis found in tuberculous subjects, as this would enable the organism to digest the albuminoid substances of the tubercle bacillus.

It is well known, but not generally admitted, how inadequate are the classical methods of treating surgical tuberculosis. It is exceptional for the conservative treatments, such as immobilization, climatotherapy, and thalassotherapy to end in a cure in severe cases and in adults.

Operative treatement, the most widely used, involves great risks such as the formation of obstinate fistulae, the reviving of latent foci, the spreading of the infection and the exacerbation of the condition by the shock of the operation. It is, in fact, only a last resource, for it does not cure—it mutilates. There are no drugs of any known proven value. The maximum result procured from immobilization is never more than complete ankylosis and not ideal as far as function is concerned.

The theoretical and experimental basis of the Finikoff method rests on his scientific researches on tuberculosis and the experimental and clinical data of recent years. Dr. Finikoff reasons that the external forms of tuberculosis are local manifestations of a general infection which must be attacked in order to achieve positive results. He considers of prime importance his—

1. Studies of the biologic state of the tuberculous soil, and

2. Studies of the immunity against tuberculosis, which is very special and quite relative and for which he has created new terms—compensation and decompensation of the bacillary lesions.

He has made studies upon the concentration in the blood of lipase and the leucocyte formulae in normal persons, in progressive pulmonary types, and in those with surgical tuberculosis, both before and after treatment. His tabulated results[22] indicate the importance of the blood lipase and the leucocytes in the "cure" of tuberculosis.

The objective of his treatment is the "compensation" (referred to above) of the bacillary lesions by the cytophylactic and biological means of stimulating the defense mechanism of the body.

He describes or defines these defense forces as follows:

1. The lipolytic property of the blood and lymphatics due to the lipodieretic ferment, the lipase, that splits the waxy envelope of the bacillus of Koch.

2. The proteolytic property of the blood due to polynucleosis which enables it to digest or neutralize the protein and albuminoid substances of the tubercle bacillus.

3. The re-mineralizing property of the body, which consists in neutralizing with the blood calcium the fatty acids released by the disintegration of the waxy envelope, and the complex toxins of the tubercle bacillus, as well as to compensate the lesions by recalcifying them. He maintains that calcium's principal action is detoxication, and stresses the importance of its use in any and all forms of the disease, continuing long after the clinical cure.

The Finikoff treatment, therefore, consists in:

1. Increasing the quantity of lipase and the monocytosis by intra-muscular injections of special absorbable vegetable oil.

2. Stimulating the polynucleosis by the addition of iodine in minimal doses sufficient to be leucocytogenic without being harmful.

3. Re-calcifying or detoxicating the organism (human body) with calcium salts in order to prevent the intoxication by the fatty acids and the demineralization.

(NOTE: 1 and 2 must be specially and freshly mixed each time immediately before the injection, or it would not be absorbed.)

The course of the disease during treatment follows definite changes by stages, the effects being noted fairly rapidly.

1. The state of detoxication marked by improvement in the general condition.

2. The congestive stage during which there is increased suppuration from fistulae if these exist or a sensation of heaviness at local foci.

3. A stationary stage, and,

4. Stage of improvement when local foci show definite changes for the better and fistulae begin to dry up and close.

Dr. Finikoff uses immobilization or extension as an adjuvant and only very temporarily to relieve severe pain in the acute stages of the osteo-articular types. One must remember that the ultimate objective with this method is recovery *with function, and not ankylosis.*

The duration of the treatment depends upon the gravity of the lesions, the general condition of the patients, and their ages. A general average of all cases of record so far is about seven months. Being simple and harmless, it can be applied under all conditions and to all classes of patients. The results are constant and just as good in serious adult cases as in incipient ones in children. It is specifically contra-indicated in advanced pulmonary and visceral tuberculosis, in cachexia, deficiency of the liver and kidneys, bacillary septicemia and meningitis.

Dr. Finikoff stresses the importance of calcium therapy, both intravenous and *per os,* and strongly recommends its continuation by mouth long after the clinical cure is established—for he finds that the phenomenon of re-calcification of the lesions does not show in the X-ray films until well after the clinical recovery.

The technique, briefly, is as follows:

Intra-muscular injections of iodized oil. The site of preference is into the gluteal muscles. There is a burning pain lasting from thirty to sixty seconds, diminishing rapidly during two to three hours to a soreness. The two ampules are emptied into a sterile medicine glass and then thoroughly mixed by pumping twenty to thirty times with the 10 cc. syringe. I use a rather large intra-muscular needle, short beveled, and not too sharp. The usual precautions for oily injections must be observed. Personally, I always disconnect the needle from the syringe after the insertion and if blood is noted in the needle, it is re-inserted. This is done to prevent an oil embolus, the only danger from the treatment. The dose varies from one to 15 cc., and must, of course, be decided by the clinician.

It is recommended that in severe cases a course of intra-venous injections of calcium chloride precede the iodized oil. About three injections a week for four weeks should be given, this to be repeated several times with six weeks' intervals. The initial injection should be 3 cc., the second 6 cc., and 10 cc. afterwards. Caution should be observed as sometimes one gets rather severe reactions with intravenous calcium. It should never be used in children or the extremely debilitated.

Calcium by mouth such as the gluconate or tricalcine, a French preparation of merit, and all adjuvants such as cod-liver oil, proper diet, rest, etc., are advocated. Only two of my cases were suitable for intravenous calcium. The diet should be rich in proteins, fats and calcium.

I wish to submit brief reports on fourteen cases treated by me since 1936. They are not all tuberculous but they are all difficult of treatment. You will note that four of these cases are rheumatoid arthritis. Finikoff privately believes, but does not attempt to prove, that an underlying tuberculosis is the possible causative factor in certain of these arthritics. It cannot be demonstrated, but as far as I know, this theory may be as good as any other. In other cases my diagnosis can and may be questioned, but I vouch for the results, and, after all, results are mighty important to those of us engaged in practice and not purely theoretical and experimental medicine. Negative Wassermanns were obtained on all cases, but unfortunately the X-ray was not available. Dr. Finikoff is at present experimenting with his treatment in pulmonary types, and is optimistic, but

does not yet recommend its general use in these cases. Any one who is careful in pulmonary diagnosis, and willing to assume slight hazards, may use it guardedly by reducing the amount of iodine content in each dose.

CASE No. 1.

A—M. V. T., colored female, age eight years. Lupus of face. Photo made February 18, 1936, after fourth injection of iodized oil. Much improvement already noted.

B—October 21, 1936, after thirty-five injections of iodized oil. Note the general healing except small ulcer, right eye.

C—April 14, 1937. All white areas are healed lesions. Only existing ulcerations are around end of nose, which shows a regrowth of 2½ cm. Child considered recovered since December but treatments continued because of the nasal reproduction.

D—November 9, 1938. Scar on cornea from ulcer has disappeared completely. No recurrence. No other treatment except iodized oil. Nose normal in length except septum, which has lagged slightly behind the rest. Pigmentation of the skin has even returned. The roughness at end of nose I believe is a regenerative process and not degenerative. C.H.D.

Case 1. M. V. T., colored, age eight, female. Lupus of face. Economic status—very poor. First seen on February 18, 1936. Extremely emaciated, physical condition poor, with a violent lupus of the face reaching the inner canthi of both eyes, and extending laterally over both cheeks almost to the ears. Total destruction of the skin, cartilage and bone of the nose upward to within 1/2 cm. of the upper edge of the lower eyelids, downward involving the entire upper lip in severe ulceration with destruction of lip tissue. Marked swelling of all cervical, submaxillary and sublingual glands. At the time of the fourth injection, such marked improvement in the lesion was noted that a photograph was made on March 18. This child received weekly intra-muscular injections of the Finikoff iodized oil with a limited amount of tricalcine by mouth. The dose of iodized oil varied from 1 to 3 cc., according to reaction obtained. No other treatment was given

until the lesion was healed, when the child was given cod-liver oil furnished by the Suffolk Health Department and this irregularly. By December 24 (ten months) the lesion had practically recovered, all glands were normal and the child had made a regular gain in weight of twelve pounds. The treatments are being continued because of an extremely interesting phenomenon noted. In March or April, 1937, a progressive prolongation of the nose was observed. This has continued to the present time with a prolongation of more than 2½ cm., including bone and cartilage. The natural pigmentation of the skin is returning.

(NOTE: This child was brought twenty miles by friends and has missed but four or five weekly trips. No cooperation in nutrition or hygiene.—Recovered.)

Case 2. J. de L., colored, male, age thirty-two. Four T. B. Fistulae peroneal and one of the rt. epididymis. Economic status—poor. Condition—hopeless.

Received eight intra-muscular injections of the Finikoff iodized oil, 6 cc. each, one week apart, the last on December 10, 1935. On December 20, the patient developed an intercurrent meningitis and died December 25. A large framed man, bed patient for over four years, weight less than eighty pounds when I saw him. Could see no possible connection between the treatment and the cause of death.

At time of sixth injection, marked decrease in discharge was noted from sinuses. Although death occurred, improvement was noted locally.

Case 3. C. R., colored, age six years, female. T. B. right knee and shoulder; osteomyelitis, right tibia. Economic status—very poor.

Patient became ill twelve months previously. When first seen entire right leg was in plaster. A discharging T. B. sinus from right shoulder; emaciated; temperature 101; acutely ill. Ten weekly intramuscular injections of iodized oil were given in the left hip. Patient greatly improved with very little discharge from shoulder sinus. Because of bad roads in winter and lack of transportation, patient failed to appear for further treatments.

Results—Improved. This patient was unable to take calcium by mouth.

Case 4. W. A., colored, age thirty-four, male. Economic status—fair. Cooperation—fair.

Three ano-rectal tuberculous fistulae, with profuse discharge onto the perineal floor. Extreme emaciation; bed patient for last four years. When first seen was developing acid colitis (a literal translation of French term, indicating continuous, persistent, sour stools, food passing quickly, undigested). Prognosis hopeless. Treatment began on August 12, 1936, with 1 cc. iodized oil into the hip. Increased 1 cc. each week until the dose reached 5 cc.; then dropped down to 3 cc. Total of thirteen injections given. Considered too debilitated for intravenous calcium, but calcium gluconate given by mouth, also tricalcine. Diet regulated, anti-acid, but the acid colitis became steadily worse, ending in death November 17, 1936.

Even so, after the sixth injection, the fistulae began to dry up and were discharging practically nothing on November 11.

Case 5. C. C., colored, age twenty-five, female. Economic status—very bad. Insufficient food at all times.

Tuberculous fistulae over each kidney. Seven months previously, large cold abscess over left hip, region kidney, opened by colored physician. Never healed, leaving discharging sinus. Later similar sinus developed same location right kidney. Treatment began October 14, 1936, with 1 cc. iodized oil, increased weekly to 4 cc. Total of ten injections given. After fifth injection patient complained no more of pain. Sinuses completely dried up on December 30, 1936. Because of extreme difficulty of getting to clinic on foot in very bad winter, was given a rest, but put on calcium gluconate and tricalcine, and told to come back if she had any more trouble. Reported October 30, 1937 condition good. —Recovered.

Case 6. G. P., colored, male, age twenty-two. Economic status—good. Cooperation—excellent.

T. B. abscess involving upper portion sternum. Discharging copiously through sinuses at two openings on chest. Treatment began with 3 cc. calcium chloride 10 per cent, then 10 cc. every other day for five injections. Then iodized oil intra-muscularly began on July 31, 1937, dose 3 cc. for three weeks, then increased to 5 cc. Last injection October 13, 1937. No more discharge from sinuses. Reported back February 16, 1938.—Recovered.

Case 7. M. H., colored, female, age six. Economic status—very poor. T. B. cervical glands, lt., purulent discharge (had been opened by physician early).

First developed July, 1937. First treatment November 11, 1937. One cc. iodized oil, weekly inter-

vals. Tricalcine *per os*. Discharged May 2, 1938. Considered recovered since March 9, 1938. Fifteen treatments. Treatments continued to produce increase in weight. Child showed consistent gain. Results—recovered.

Case 8. E. M., white, female, age thirty-five, married. Economic status—good. Cooperation—extremely poor.

First seen December 30, 1935. Diagnosis—T. B. mesenteric lymph nodes, fecal fistula through the anterior abdominal wall just below umbilicus. Extremely emaciated, "shrunk" in height. Prognosis poor; had been told by others she had only few weeks to live. Weekly injections 5 cc. iodized oil beginning January 3, 1936, ending February 10, 1936. Total six injections, when treatments were discontinued because of husband's opposition, and against my advice. After the fourth treatment a most noticeable improvement was noted in local condition, the sinus closing nicely, patient's general appearance vastly improved. Commented upon by her friends. This improvement continued for many months, patient becoming ambulatory and going everywhere. She continues an active life. Very obstinately constipated, alternating with diarrhea. Obstinate mentally. Results—improved.

Case 9. Mrs. F. H., white, widow, age sixty-three; fistula in ano. Economic status—excellent. Cooperation—excellent.

Family history suspicious; closely associated in infancy and early childhood with tuberculous sister.

Six children. Menopause facile; no illness until 1934, when in February states she had an "abscess of the rectum." Same year she had a throat cold, followed by general rheumatic pains. During 1936 had another rectal abscess, followed by pains in the legs. Several abscesses in 1936, one per month, some as large as a walnut, the latest in January 1938. All ruptured spontaneously, after considerable pain and suffering. Pain through the sacrum, lower pelvis, and legs, of disabling nature. Unable to walk more than one block at a time. Teeth and tonsils removed in 1934.

Examination revealed a fistula in ano, external opening 2½ cm. ext. border anus. Internal opening high in anus. Mucosa around interior opening of somewhat unhealthy appearance, slightly grayish discoloration around reddened area. Patient very much opposed to surgical intervention. States she has had several friends who had had rectal operations with invariably bad results. Her daughter, who was operated on ten years previously for fistula, had had involuntary stools since.

Patient started on calcium gluconate and oxo-ate B; latter discontinued after one month. Injections 3 cc. iodized oil began March 10, 1937 at weekly intervals. Dose increased to 5 cc. July 28, 1937. Showed steady gradual improvement in general and local condition.

Local history after beginning treatment:

Pains in legs and lower back relieved by May 26, 1937.

Small abscess formed April 15, 1937; 2 cc. pus; ruptured April 18, 1937. This was six weeks after beginning injections. Last previous one, January 16, 1937, was size of walnut. May 6, 1937—small with ½ cc. pus.

October 14, 1937, one drop blood. Dose reduced to 4 cc. iodized oil. December 22, 1937 patient discharged at her request so that she might visit and rest from treatments in Winston-Salem, N. C. This patient has needle phobia. Returned voluntarily March 16, 1938, stating that soon after her arrival in Winston-Salem (three or four weeks) she began going back, with recurrence of some discomfort in her back. On January 27 a small abscess formed from which on January 29 she expressed one drop greenish colored pus, blood tinged, followed by stiffness of hips and legs. Treatment resumed with 4 cc., when she very promptly responded and stated she felt fine. Walks and rides great distances. No further disturbance around fistula. Treatments are being continued but it is felt there is very little danger of relapse. (While in Winston-Salem consulted proctologist who advised fisula inoperable, because of depth, and to continue iodized oil treatments). Results—recovered.

Case 10. J. W. H., white, male, age fifty-seven. Economic status—good. General hypertrophic arthritis, white swelling, left knee.

This patient had been a chronic invalid, unable to attend to any farm duties. Left knee enlarged three times normal size, doughy to touch, considerable pain. Joint function 10 per cent. "If you can get me so I can go fishing just one more time I'll be satisfied." Beginning July 14, 1936, fifteen weekly injections iodized oil given, starting 4 cc. and increasing after second week to 6 cc. Patient so much improved he stopped treatments on fifteenth injection against advice. General arthritic pains disappeared,

left knee normal in size, not painful. Patient had progressed from crutches to cane, then discarded that.

This patient returned voluntarily on May 18, 1938, stating he had been having some stiffness in joints, requesting about fifteen more treatments. His knee was same as when previous treatments discontinued with 90 per cent normal function. His general arthritis was of seven years' duration. Results —recovered 90 per cent.

Case 11. L. B., white, male, age sixty. Economic status—excellent. White swelling left knee.

Generally emaciated; teeth looked bad, but after X-ray by dentist, passed as O.K. Left knee painful; walked with difficulty by using cane and going very slowly. Poor appetite. Considerable crepitus in joint. Motion 30 per cent. Twice normal size, doughy.

Patient has received up to the present twenty-nine weekly injections of iodized oil, beginning on November 3, 1937 with 5 cc. and reducing on March 2, 1938 to 4 cc. Calcium gluconate by mouth.

Present condition, good; left knee normal in size; no pain; appetite excellent; weight increased six pounds. In March had inter-current phlebitis right int. saphenous vein, below knee. Cause unknown. Dentist to extract teeth. Results—recovered.

Case 12. G. P. K., white, male, age fifty, carpenter. Economic status—poor. Past history: sixteen years previously had inflammatory rheumatism.

November 7, 1936—claimed a straining injury on November 4, 1936, while at work. In assisting three other carpenters in placing steel beam, slipped backwards with total weight of heavy beam on his arms, straining back, knees, and hands. In bed when seen at this time; severe pain upper right lumbar region and lower right thorax posteriorly.

November 20, 1936—Continued pain in back; also inflammatory arthritis both knees, ankles, hands and wrists. Septic temperature, sweats; B. P. 155/80; urine negative. Prescription given for anti-arthritics plus intensive doses of aspirin, both plain and effervescent. Patient showed improvement but became extremely emaciated. Right knee remaining badly swollen, though external knee temperature normal. Still in bed helpless.

Began iodized oil December 10, 1936, dose 2 cc. weekly. Three courses intravenous calcium chloride 10 per cent, three injections per week, alternating weeks. Patient became ambulatory on January 1, 1937, and came to clinic for later treatments. Dose increased to 3 cc. December 23, 1936, and maintained there. Iodized oil discontinued on April 7, 1937.

February 3, 1937—Patient much improved. Complains of some stiffness in joints; no pain. Gained weight, color good, appetite excellent. March 24, 1937—Excellent condition generally, complains some discomfort right ankle. Industrial commission hearing set for April 9, 1939. This may have explained complaints at time as consulting physician's examination showed no objective symptoms. Claim for disability and compensation not allowed by commission. Patient returned to work latter part of May and has continued ever since, with no relapse. Inclined toward the rather heavy use of alcohol. Results—excellent—recovered.

In this case it would be an exaggeration to credit the Finikoff treatment with the results. My only contention is that the patient showed an astoundingly rapid improvement going on to complete recovery, a result infrequently attained with other therapy in one of the most obstinate conditions the medical profession has to deal with, only eighteen weekly injections having been made, plus the intravenous calcium, to obtain them.

Case 13. P. S., white, male, farmer, age forty-one. Economic status—good.

Rheumatic arthritis of four years' duration. Complete disability, being unable to attend to any ordinary farm or household duties. All articulations of both lower extremities affected. Prognosis bad, but Finikoff treatment offered as experiment and accepted on this condition. Tonsils removed three years previously; no results. Teeth had been X-rayed and approved by dentist. Patient first given Oxo-ate B for one month; no results. In fact, stated he was worse and in addition complained of rather severe pain in the back. Injections of iodized oil began on September 9, 1936, dose 2 cc. On October 21, 1936 patient greatly improved, and was doing farm work. Dose increased to 3 cc. and maintained at this point until December 16, 1936. Entirely recovered, enthusiastic over treatment, but felt so well he discontinued treatments against my advice. Had resumed more than normal activities and was taking on more all the time. No other therapy employed; no relapse to date.

Total injections fifteen. Results—recovered.

Case 14. H. P. R., white, male, age forty-nine, farmer. Economic status—good.

Arthritis left knee; right shoulder painful. First came to me on crutches. Severely disabled. Left knee enlarged 50 per cent. Function 25 per cent, both flexion and extension. Gave history of urethritis, gonorrheal, seven or eight years previously. Diagnosis, general hypertrophic arthritis with a possible gonorrheal infection of left knee underlying. Patient a very heavy, fat, large, florid complexioned male. Had consumed large daily doses of aspirin for years in order to obtain some rest. Placed on Oxo-ate B three weeks; no results. Also course of prontylin; no results on suspect knee. Injections iodized oil, dose 3 cc., began on June 16, 1937, and continued at weekly intervals until September 29, 1937—a total of fifteen treatments given. No other medication during this or since. Showed progressive and rapid improvement, discarding crutches for cane on or after sixth injection, and discarding cane after thirteenth treatment. Stopped treatments against advice on September 29, 1937, even though knee was normal in appearance, no pain, and function completely normal. Attends to all farm work at present and has had no relapse. Results—recovered.

CONCLUSIONS

The number of cases presented here is inadequate for one to form a definite conclusion regarding the efficacy of the treatment. However, there is a considerable variety, and the results do conform to Finikoff's and others' claims.

Total cases	14	(7 white—7 colored; ages 6 to 60)
Recovered	10	
Improved	2	
Death	2	

(The two fatalities were expected, as may be noted from the case histories, but the fistulae in each case showed marked improvement. The treatment was given for this purpose only).

My impressions of the treatment, in some instances confirming Dr. Finikoff's conclusions, are:

1. It is based upon established scientific principles and is not purely empirical in character.

2. It attacks the bacillary infection of the body in general, and not its local manifestions.

3. It fights tuberculosis by stimulating the natural defense forces of the body.

4. From the clinical point of view the treatment is applicable to all forms of bone and joint tuberculosis, and to patients of all ages. It produces results in advanced cases in adults as well as incipient cases in children.

5. It is self-sufficient without complicated adjuvant measures.

6. Its action is rapid, the cure, when obtained, being produced in a relatively short space of time. This is of great clinical and social importance.

7. It lends itself to an exact dosage and always produces the same and constant effect. Yet it is flexible enough to be adaptable to all cases, enabling the clinician to individualize it.

8. It is harmless and does not expose the patient to unnecessary risks. It seems to improve the general condition of the tuberculous patient.

My individual experience convinces me that the treatment is simple, harmless and easy to apply under any and all circumstances.

It enables the average physician to do something for a great class of patients where he has been particularly helpless, his only recourse having been to refer these patients to the orthopedic surgeon. Incidentally, and not of minor importance, it aids in building up a rapidly diminishing practice. It offers a better than average chance (75 to 80 per cent) of improving these cases. When improvement is obtained, the articulation resumes a normal or nearly normal function, without ankylosis.

The results appear rapidly in tuberculous glands and in discharging tuberculous sinuses. They are even more spectacular in certain types of dry rheumatoid arthritis.

The patients are soon conscious of an increased sense of well being and are encouraged. They invariably continue what may be a long drawn out course of treatment. There is a constant increase of appetite and weight. I know of no other therapy that might have given as good results as these noted above. In the rheumatoid arthritis, I resorted to it more or less in desperation and because Finikoff had told me personally of striking results obtained by him in some of these cases.

My clinical field necessarily being limited, it is hoped this brief report may induce others to try the treatment. I can wholeheartedly recommend it.

SPECIAL INFORMATION IN REGARD TO REACTIONS

Repeated methodically every five to eight days in the gluteal muscles, the injections of iodized oil produce a moderate reaction. It is useless to give them more frequently as the percentage of lipase in the blood does not drop before the sixth day. The temperature rises from one to two degrees F. and the general state of the patient during the first twenty-

four hours is not quite so good as usual. At the site of the injection there is a burning sensation lasting from one to three hours, but severe for only a few minutes. For four or five days there is visible a small induration which disappears of its own accord.

At the focus the reaction is more marked. If there is a fistula, it suppurates more; if the focus is closed, it increases in size and gives a sensation of uneasiness and heaviness. All this does not last for very long; at the end of two or three days, everything returns to the normal state. The subsequent injections provoke weaker reactions, but it is not till near the end of the treatment that they begin to be absent altogether.

Sometimes the first injections give such feeble reactions that they pass unnoticed. The dose of iodized oil must then be increased.

In cases where the rise in temperature exceeds two degrees F., revert to the previous dosage, or even decrease it if the patient's weight does not continue to increase.

Dr. Finikoff has proved definitely in his clinics that the treatment increases the lipase from two and one-half to eighteen or twenty units.[22] The leucocytes increase seven to twelve thousand with a 25 to 50 per cent rise in the monocytes, depending on the length of time the treatment has been administered. There is a corresponding eosinophilia up to 10 per cent. This has been corroborated by Shilling, Richard and Arneth.

The oil increases the lipase and monocytes, which rise together. The iodine produces a strong initial polynucleosis followed by an even stronger mononucleosis.

This effect is noted constantly where improvement takes place and, conversely, where there is no improvement, there is no change in the blood picture. This is so definitely proven that blood examinations are not necessary for the treatment, though, when available, they are interesting.

For those having laboratory facilities and who are ultra-scientific, the following blood pictures are given as a guide to the "Mode d' émploi";

1. Picture of Resistance—
   - Mild leucocytosis, not over 10,000.
   - Fairly strong monocytosis, with mild eosinophilia 2-4 per cent.
   - Temp. not over 37.5 C. axillary.
   - Kidneys and heart normal.

   All three agents in large doses.
2. Picture of Defense—
   - Leucocytosis 10-15,000.
   - Polymorphonuclears increased.
   - Mononuclears increased with decrease in eosinophiles and lymphocytes.
   - Temp. not over 38.5 C. axillary. Patent's general condition bad with weakness and anorexia but not cachectic.

   Iodized oil in reduced dosage.

   Calcium increased, both intravenously and by mouth.
3. Picture of Destruction or Decline (Decheance)
   - Hyper-leucocytosis 16-20,000.
   - Polys 90 per cent—Mononuclears diminished.
   - Eosinophiles—none—or if
   - The general condition of the patient is very bad, but not cachectic,
   - Large doses calcium intravenously and by mouth, Iodine externally, oil by rectum, later small doses iodized oil intra-muscularly.

   In the very young and old, pregnancies, myocarditis and the nervous vagotonics, calcium should be given in retention enemae,

Calcium chloride	Grammes	1
Luke warm water	"	200
Starch	"	4

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PEDIATRIC ENDOCRINOLOGY.

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It has been said that we live "in a sac of fluid." The chemical balance of this fluid—blood and serum—is maintained by a complex physiological circle composed of nerve centers, endocrine glands and hormones. A mutual inter-relationship exists between nerve centers and these glands. The former send impulses to the latter and these in turn influence nervous centers by producing hormones which circulate in the blood, reach these centers and influence their function. Clinical evidence points to close relationship also, of the various endocrine glands.

Probably the most often noted is hypo-activity of the thyroid resulting from a deficiency of the thyrothrophic hormone from the pituitary. Recent research has shown that the effect which is elicited by any given hormone depends upon the nature of the conveying medium. The most important factors include the PH of blood plasma and tissue fluids; the concentration of electrolytes such as calcium and potassium; and the presence of, and concentration of, lipoid substances such as lecithin and cholesterol.

Endocrinology should be of paramount importance to those of us whose primary interest is with infants and children, as it is here that we may be fortunate enough to discover early a pathological condition which, if corrected, may prevent an unhappy, retarded childhood and an anti-social adulthood. All bodily functions are influenced by these glands. They are concerned with nutrition and growth, with sexual activity, and with the mental development. Witness the giant or the dwarf with his improperly functioning pituitary; the cretin or the "slow", mentally retarded one with his underacting thyroid; the markedly irritable, emotionally unstable, hypoparathyroid case; the child with osteogenesis imperfecta. Time prevents mentioning more than these few of the many abnormalities. In addition to these, there exists the mental attitude of the child toward physical abnormalities produced by malfunction of these endocrine glands, as has been so admirably pointed out by Lurie, of Cincinnati, which may induce emotional conflicts of marked severity. This will often determine a child's outlook on life and govern his behavior.

It is not the purpose of this discussion to go into symptomatology or present case reports. It is but to bring, again, to your attention objective signs which should lead to an investigation of the endocrine system. In the early months one should be suspicious of the infant with decreased or increased muscle tonicity; one with coarse, dry hair; one who fails to hold the head up or try to sit up at the usual time. Later on the delayed appearance of the teeth; delayed creeping or walking or talking. Still later on temper tantrums, speech defects and destructiveness. Next comes the school age. The literature contains in-

numerable reports of improved intellectual status as a result of thyroid medication. Mild hypothyroidism is no doubt the most common of all hypoglandular cases and the easiest to correct, once recognized. I quote from Lurie: "What teacher has not come in contact with the child who is slow thinking and somewhat irritable, shows some form of speech defect, does not respond to the usual form of classroom discipline and is a school failure? Such children merit an endocrine examination because often they are suffering from varying degrees of thyroid deficiency. In this connection I wish to call attention to a clinical syndrome in which extreme restlessness, destructiveness and speech disturbance are the outstanding symptoms. This triad of symptoms when present in young children almost always indicates a state of hypothyroidism." Restlessness should be emphasized as it is so seldom thought of in hypothyroidism. Usually we think of restlessness as associated with *hyper*thyroidism. In children, however, hypothyroidism may have this as its outstanding objective symptom.

After the thyroid the next most common malfunctioning gland noted in children is the pituitary. This gland has most properly been called "The leader of the Endocrine Orchestra." Its proper function is not only important to growth and development but it also secretes substances that awake other glands to activity and stimulates others to greater activity—the lacteal glands and the pro-creative glands. We are all most familiar with Froelich's syndrome, dwarfism, genital infantilism and adiposity of the monsmanary girdle type. These children, when young, are cheerful, happy and content with their lot. Their intelligence is rarely below normal, unless the thyroid is secondarily affected, and may even reach the superior levels. However, their reaction time is usually slowed and they may, therefore, be at a disadvantage in an I. Q. test and be rated as subnormal. This slowed reaction time may also result in difficulty in keeping up with their class-mates in the school room.

This type child soon becomes conscious of his or her physical abnormality and resents the teasing of his associates. With this combination of handicaps we have a fertile field for the development of a morose individual who shuns his friends and retires to a world of fantasy, or he may become aggressive, dominant and anti-social as an expression of resentment—in either event a maladjusted, unhappy child. A mild type hypo-pituitarism may manifest itself only in that the child will fall asleep readily in school or even a movie theater. They are hard to awake to full consciousness in the mornings. This annoys both parent and teacher no end and is prone to be attributed to carelessness and indifference. Due to the fact that the pituitary secretes a thyrotrophic hormone, it is not uncommon to find a symptom-complex referable to both in the same individual and it is essential to both diagnosis and therapy to determine the relation of these two factors.

The surface of endocrinology has hardly been scratched. Much research is being done. We know now that the thyroid gland is instrumental in bone formation. Is it not possible that the prevention of rickets is not alone dependent upon sufficient calcium and vitamine D intake, but also upon a properly functioning thyroid? Is it not possible that altered reactivity—or allergy—is due to some malfunction of an endocrine or group of endocrine glands? There must be an underlying etiological factor that makes it possible for little Willie to eat an egg and enjoy it while little Jimmie breaks out with an urticarial rash or wheezes with asthma if he attempts it. Many years ago small doses of thyroid were given empirically, with reported good results, in infantile eczema.

What a bewildering kaleidoscope! Man, in health and disease, is still shrouded in mystery, still a paradox that defies reason and all the sciences that try to wrest the secrets from him. And long will it be before man knows man. "The life so short, the craft so long to learn": so sang Chaucer. Will it ever be learned?

1822 Monument Avenue.

OBSTETRICAL AMNESIA, ANALGESIA, AND ANESTHESIA — WITH SPECIAL ATTENTION TO THEIR EFFICIENCY, AND SAFETY TO MOTHER AND CHILD.*

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Within recent years, no subject related to obstetrics has received more attention than the one above. The obstetric patient now almost without exception demands a promise of relief of pain during labor, and unfortunately generally has the idea that it is a simple procedure, and without danger. Because of this demand, the search for an ideal agent has received added impetus, and the recent scientific literature abounds with articles on the subject. For this reason, it was felt that a review of some of the more recent work might help both the physicians and the patients—the former by summarizing the methods in use and attempting to properly evaluate them, the latter by proper instruction through the former rather than through incorrect ideas gleaned from lay journals.

Just what would be the ideal amnesic, analgesic, and anesthetic? Unquestionably, that which combined perfect efficiency with absolute safety to both mother and child. While other factors are concerned, these two are essential. What is the degree of any or all of the above qualities desired? Opinion varies from that of Nielson,[1] who believes the routine administration of analgesics in the first stage wrong, to that of Bill,[2] who advocates complete amnesia, analgesia, and anesthesia in all cases.

Nielson,[1] as well as others, feels that generally amnesics and analgesics are potentially more dangerous to the fetus, and anesthetics to the mother. She believes there is danger of personality damage by lack of the knowledge of childbearing.

Bill,[2] while emphasizing that no one method is suitable for all cases, advocates morphine-scopolamine in primiparae and sodium amytal in multiparae, using inhalation analgesia and anesthesia with nitrous oxide and oxygen alone or with ether, or ether alone. He stresses not giving scopolamine within three hours of the expected birth of the baby, and attributes his good results in more than twenty thousand cases to this. He considers a competent obstetrical anesthetist the most important single factor in the success of a case, and blames poor results on bad judgment rather than drugs. He thinks we should train men toward the use of what we consider ideal, rather than lowering the standards to those of untrained men.

Gwathmey[3] is enthusiastic about his own technic, and also states good results in more than twenty thousand cases. He gives sixteen reasons for its use, with only three contra-indications. He claims no lengthening of labor; decreased maternal morbidity and use of forceps; less post-partum hemorrhage than with any inhalation method; slight to good amnesia and analgesia; safety for home use by any physician; no fetal deaths; and success in better than 80 per cent of the cases.

Clifford[4] fears any opium derivative because of fetal asphyxia. He points out that the intensity of the morphine effect reaches its peak in four hours, and declines rapidly after the sixth hour, being practically nil after the eighth hour. His method is pentobarbital with or without scopolamine, and terminal nitrous oxide-ether. He thinks the addition of the scopolamine aids amnesia, and causes no effect in the babies. Pernocton gave a high percentage of cyanotic babies and poor amnesia. Paraldehyde and rectal ether gave no asphyxia, but no better amnesia.

Irving,[5] at the Boston Lying-in Hospital, studied various methods for a year, and reports his results in a most comprehensive article. He obtained no maternal deaths. The still-birth rate was less than in a year when no analgesics were used (0.93 per cent and 1.4 per cent). He attempted complete amnesia. In the pantopon series, primiparae received medication after two fingers' breadth dilatation; multiparae, when pains were good, regardless of the condition of the cervix. His results are shown in the following table (100 cases in seven and 160 in one group):

*Presented before the Roanoke Academy of Medicine, January 9, 1939.

Method	Complete Amnesia	Partial Amnesia	No Amnesia	Excited	P.P. Hem. Over 300 cc.	Spontaneous Breathing
Pantopon and scopolamine	39	34	27	10	25	33
Pantopon and rectal ether	18	67	25		16	53
Pernocton	42	43		15 15 con. mov.		53
Sodium amytal and scopolamine	80	20	0	17.5		61
Pentobarbital and scopolamine	86	14			3	63
Sodium amytal and rectal ether	70	25	3			59
Pentobarbital and rectal ether	66	28	6			
Pentobarbital and paraldehyde	64	20	16			50

On the Out-Patient Service, without anesthesia, only 1.9 per cent of the babies failed to breathe spontaneously, and only 20 per cent of those in the hospital with gas-oxygen and ether anesthesia. The total operative incidence was lessened as compared to a year when no analgesics were used (35.6 per cent and 44.6 per cent). He feels pentobarbital and scopolamine the best method, the only valid objection being restlessness.

Galloway,[6] with nembutal and scopolamine, had 93.6 per cent pain relief, and felt that infant and maternal morbidity and mortality were not increased, but the operative incidence was. He advises against use in the home, as the patients require constant and intelligent supervision. He[7] also asked the opinion of pediatricians and patients, and the majority of both favored the method.

Krebs,[8] of St. Louis, has also used the morphine-scopolamine technic and, in 3720 deliveries, experienced only 2.6 per cent fetal mortality. He mentions that animal experimentation shows scopolamine, in greater than needed doses, causes no change in respiration or blood pressure. In using the barbiturates with scopolamine, he feels he reduces the fetal apnea, and says there is no proof of trouble from fetal apnea. Both methods produced excitement. He considers a trained obstetrician and hospitalization necessary. Wulff, his co-worker, had no fetal apnea in cases receiving ortal sodium and scopolamine.

Lewis[9] considers labor trauma of greater responsibility than analgesics in the production of depression of the respiratory center. He advocates little analgesic other than nitrous oxide-oxygen, and at sufficient interval before delivery to prevent said depression.

Montgomery[10, 11] feels the use of amnesics, analgesics, and anesthetics is an important factor in the high intrapartum death rate. He believes ether the safest anesthetic; objects to the Gwathmey method because it is a poor amnesic; considers chloroform or spinal anesthesia dangerous; objects to the barbiturates because of cyanosis, respiratory depression, thready pulse, and shock; and feels that local anesthesia should be used more often.

Daichman[12] believes morphine the most valuable single drug, and sodium amytal and scopolamine the best method. He reports 92.4 per cent analgesia, 67.9 per cent amnesia, and only 1.8 per cent fetal asphyxia. He had 74 per cent fetal apnea following the Gwathmey method, and avertin tended to permit bad post-partum hemorrhage.

Point[13] believes nitrous oxide the best anesthetic, and defends the use of cholorform in normal cases. He feels that spinal anesthesia is no good for obstetric use, and that caudal anesthesia is dangerous. He considers the Gwathmey method the most widely used single method. He uses thymophysin to shorten labor.

Lundy[14] concludes that nitrous oxide and ethylene are the most flexible anesthetics. He thinks ether all right, but that the oil-ether colonic method is not sufficiently analgesic, and that it slows labor. Avertin caused restlessness, and it is difficult to estimate the safe dosage. The barbiturates he thinks fail to relieve hard pain; that there is danger of delayed poisoning from chloroform; that local and regional anesthesia will be more widely used; that spinal anesthesia tends to cause hemorrhage; and that abdominal block is useful in certain conditions.

Adair,[15] in experiments on the post-partum uterus, found that most analgesics caused either relaxation of the uterus between contractions; lengthening of the interval between contractions; or lessening of the contractions, and feels that the same effect may be produced on the laboring uterus.

Kane,[16] with rectal paraldehyde, reports 89.7 per cent complete, 2.6 per cent partial, and 7.7 per cent no amnesia. He feels that the early administration, regardless of the type of pains or the condition of the cervix, is in favor of this method. He believes

that the relief of pain not only pleases the patient, but that it also prevents obstetric shock, and permits a better post-partum course.

Douglas[17] uses oral paraldehyde with aromatic elixir, preferably preceded by one hour by nembutal or pantopon. He reports 94.3 per cent complete amnesia, and only slight asphyxia. He feels the method safe for home use.

Colvin[18] uses oral paraldehyde preceded by nembutal or sodium amytal. He advises stimulation of pains if uterine inertia persists for more than an hour following the administration of the paraldehyde.

Kassebohm[19] obtained quiet induction of sleep after intravenous evipal or pentothal. He had no respiratory difficulties or post-partum hemorrhage. He feels the patients are subject to marked individual susceptibility.

Siegler[20] uses evipal rectally with scopolamine, and reports no retardation of labor, no bad effects on the new-born, no post-partum hemorrhage, and good analgesia and amnesia. He feels the method safe.

Graffagnino[21] believes epidural anesthesia should be part of the armamentarium of every trained obstetrician and anesthetist, as all major obstetric procedures can be performed safely and with the conscious cooperation of the patient, except version.

O'Connor[22] uses the barbiturates and scopolamine in the first stage, followed by pudendal nerve block. He feels that spinal and caudal anesthesia and sacral block must also be considered.

Caine[23] considers ether the preferable anesthetic, but says that the condition of the patient, apparatus, knowledge of use and what to expect, opinion of the obstetrician, and presence of a skilled anesthetist are all factors influencing the type used. He thinks ether and chloroform best for the lone practitioner, but believes the latter always damages the liver and kidneys to some degree. He prefers ether and cyclopropane to nitrous oxide as an analgesic, and feels that continuous inhalation analgesia is practical when a skilled anesthetist is present.

Schreiber[24] believes that cerebral anoxia, caused by "variable factors" under the theoretical heads of (1) metabolic anoxia, (2) anemic anoxia, and (3) drug anoxia, may cause cerebral damage in the new-born. The same author[25] feels that all drugs used as analgesics and amnesics cause depression of the respiratory center, and believes they may so depress the maternal respiratory center that a dangerous anoxemia ensues in the fetus with resultant changes in the brain, even though, because of the time elapsing between medication and delivery, no anoxemia may be evident at birth. He states that the late microscopic changes of cerebral anoxia are death of nueral tissues with gliosis, and the gross end-result is atrophy of the brain. Of 500 cases seen for cerebral symptoms, about 72 per cent gave a history of birth apnea. There was only 2 per cent apnea in cases not receiving analgesics and amnesics. He feels we must consider the remote as well as the immediate effects of these drugs, and re-evaluate the relief of pain.

For the past eleven years, and following training by Bill, this essayist has used the morphine-scopolamine and sodium amytal technics[2] as outlined by him for primiparae and multiparae respectively. The results have been uniformly good. Since the publication of the article by Krebs[8] he has modified it to the extent of continuing the scopolamine longer, and using inhalation analgesia and anesthesia only as needed for the control of second stage pains, and has also added scopolamine to the sodium amytal method, repeating the scopolamine as in the morphine technic, and seldom if ever repeating the sodium amytal. He now feels the success of the method of the morphine- scopolamine technic is not due to the withholding of scopolamine, but to the fact that morphine is practically never given within six hours of delivery. Clifford's[4] findings regarding the intensity of the morphine effect would verify this belief. Certainly the later continuation of scopolamine in the primiparae, and its addition to the sodium amytal in the multiparae, has greatly reduced the amount of inhalation analgesia and anesthesia needed, and there has been, if anything, a further reduction in fetal asphyxia. It is the feeling of this author that, in the hands of trained men, these methods will give the best results, with the warning that every case must have careful judgment, and that no one method will suffice for all cases.

CONCLUSIONS

1. No safe and ideal agent as an obstetric amnesic, analgesic, and anesthetic, has been found.

2. All methods now in use should be performed in the hospital by trained obstetricians.

3. In the use of the morphine-scopolamine technic, fetal asphyxia will be practically nil if no morphine is given for six hours prior to delivery.

4. The recent findings on the late effects of analgesic and amnesic drugs may cause a complete revision of present ideas concerning the value of relief of pain in labor.

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INTESTINAL OBSTRUCTION.*

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Intestinal obstruction continues to be one of the most serious conditions arising within the abdomen, carrying a high mortality rate unless it is recognized early and proper treatment is instituted. There are few conditions arising within the abdomen that can so thoroughly test the diagnostic ability and surgical judgment of the surgeon as does intestinal obstruc-

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tion. This paper will be confined to a discussion of mechanical and paralytic obstruction.

ETIOLOGY

Mechanical obstruction is the cause of the majority of cases of intestinal obstruction, and two-thirds or more of all cases of mechanical obstruction are due to strangulated external herniae and to bands and adhesions. While most bands and adhesions are post-operative, it is estimated that from 5 to 15 per cent of all cases of mechanical obstruction occur where there has been no previous surgery. The next most frequent causes of mechanical obstruction are neoplasms (about 10 per cent) and strictures. The neoplasms may be benign or malignant; the strictures may be congenital or acquired. Intussusception, volvulus, internal herniae, mesenteric thrombosis, Meckel's diverticulum, gall-stones and other foreign bodies account for nearly 20 per cent of the cases of mechanical obstruction. Incomplete mechanical obstructions may be converted by cathartics into complete obstructions.

Paralytic ileus occurs most often in patients having peritonitis, but various grades of it from partial to complete ileus frequently occur following intra-abdominal operations and many other conditions. It occurs often following operations where there has been much handling of the intestines, especially if it has been necessary to free bands and adhesions, and where all the raw surfaces can not be completely covered. Paralytic ileus following intra-abdominal operations may cause many anxious moments, but if peritonitis does not develop, and if proper conservative measures are instituted immediately, death should rarely, if ever occur. Paralytic ileus may result reflexly from torsion of the omentum, spermatic cord or ovarian cysts, etc. It frequently occurs during the course of infectious fevers (such as pneumonia, etc.); from injuries to the abdomen and spinal column, and diseases of the spinal cord. Paralytic ileus may occur following hemorrhage into the peritoneal cavity.

Incomplete obstruction due to carcinoma of tranverse colon.

Complete obstruction of small bowel with fluid levels.

SYMPTOMS

The symptoms of mechanical obstruction will vary with the type of the obstruction, with the location of the obstruction in the intestines (whether large or small), whether the obstruction is complete or incomplete, and whether strangulating or simple.

In early obstruction the patient does not as a rule appear particularly ill, and for that reason the seri-

ousness of the condition may escape the examiner unless he takes a careful history and auscultates the abdomen during the cramps. So we must be ever mindful of the fact that the patient with early simple mechanical obstruction will not appear particularly ill. *Pain, nausea, vomiting* and *distention* are the chief symptoms. Constipation may be a prominent symptom, but in intussusception (and at times in mesenteric thrombosis) there are usually thin, watery, blood-stained stools. Intussusception occurs usually in early life, 75 per cent of the patients being under two years of age.

Pain. In mechanical obstruction there may be a few premonitory symptoms and then a sudden change to severe colicky pains. Early, the pain is in the umbilical or epigastric regions, but later the whole abdomen may be involved. Pain is the earliest symptom of obstruction. While pain and vomiting occur early in mechanical obstruction of the small intestine, distention is a late symptom. In mechanical obstruction of the large bowel, pain and distention occur early—the distention soon becoming marked if the obstruction is complete. The pain is crampy, intermittent, and of short duration. The cramps soon recur, and they are usually severe. No discomfort is ordinarily experienced between the cramp-like pains in early, simple obstruction; later, however, there may be continuous discomfort between the cramp-like pains, but when this occurs there will probably be distention and there may be beginning interference with the circulation of the bowel. On the other hand, in strangulation obstructions there may be transudation of fluid and blood into the peritoneal cavity, which will give rise to a more continuous type of pain, in addition to the colicky pains. So when there is discomfort between the colicky pains early in obstruction, we should think of the strangulating type of obstruction. The pain in late obstruction is not as marked as in the early hours.

Paralytic ileus accompanying vascular degeneration of the spinal cord.

The occurrence of rhythmical cramp-like, colicky pains with an accentuation of noises (borborygmi) at the height of the pain, established the cramp as intestinal colic. After a diagnosis of intestinal colic has been determined by the intimate relationship between the occurrence of the noises and pains, then it will be necessary to rule out other conditions such as enterocolitis, food indiscretions and allergy—which may be accompanied by intestinal colic—before a diagnosis of intestinal obstruction (mechanical) can be made. In strangulation obstructions, after the development of gangrene, sooner or later the peristalsis may cease and the abdomen become silent.

Vomiting. In mechanical obstruction of the small bowel, vomiting is an early and prominent symptom. The vomiting is usually profuse, and the higher the obstruction the more pronounced is the vomiting. Vomiting is often more profuse in mechanical obstruction of the small bowel than in any other condition. While the vomitus at first consists of the stomach contents, there is soon regurgitation into the stomach of the contents of the upper part of the intestines which are stained with bile, and later the vomitus—if the obstruction is not relieved—becomes of a darker color, and has a foul fecal odor. When fecal vomiting occurs in mechanical obstruction, the obstruction is nearly always in the small bowel, and the condition of the patient is always critical. Vomiting is not a prominent symptom of obstruction of the large bowel; in fact, it ordinarily occurs late, and there may even be enormous distention without the occurrence of vomiting. If much vomiting does occur it is usually reflex, or there may be peritonitis. This is due to the fact that the ileocecal valve and

Paralytic ileus—post-operative.

sphincter when adequate (probably in more than a majority of the cases) do not permit a regurgitation of any particular consequence of the contents of the colon into the ileum, thereby forming practically a closed loop of bowel; therefore, vomiting would be expected to occur late.

Distention. Because vomiting occurs so early and frequently in mechanical obstruction of the small intestine, it is easy to understand why distention ordinarily occurs only late. In mechanical obstruction of the large bowel, because the ileocecal valve and sphincter often do not permit regurgitation into the ileum, the colon rapidly becomes distended and the distention becomes evident early.

Tenderness. Early in simple obstruction there is no tenderness or rigidity of the abdomen, except during the height of the pain. In strangulation obstruction there is tenderness of the abdomen, and the pain is more severe than in the simple type of mechanical obstruction. Whether tenderness is or is not present may be a helpful point in the differential diagnosis of early, simple and strangulation obstructions. Tenderness occurs in late, simple obstruction. Whenever a mass develops, there is marked tenderness, and the viability of the bowel is diminished.

In strangulation obstruction the seriousness of the condition will become apparent much earlier than in the simple type, which will be noted by the appearance and general condition of the patient. In late obstructions, when much vomiting has occurred, dehydration becomes marked, unless the fluids and electrolytes have been replaced. Early in mechanical obstruction there is no increase of temperature or pulse rate, but when they are increased, the pulse rate is always increased first. In strangulation obstructions, shock may occur fairly early, and then the temperature would be subnormal and the pulse weak and fast; the shock depends to a great extent upon the length of the loop involved, upon the blood loss and upon the extent of the intoxication. Late in mechanical obstructions, there are fever and an increased pulse rate, with symptoms of dehydration, intoxication and probably symptoms of peritonitis. Patients with strangulation obstructions are always sicker than those with the simple types of obstruction or with paralytic ileus, unless the ileus is accompanied by peritonitis.

Chronic Obstructions. In the chronic types of obstruction, distention is more likely to be present early, and there may be visible peristalsis. Ordinarily, visible peristalsis does not occur in acute obstructions.

PARALYTIC ILEUS

In paralytic ileus distention and vomiting occur early; the pain is usually continuous and the cramps, when they occur, are not as frequent or as severe as in mechanical variety. The distention soon becomes marked, if measures for decompression are not instituted early. The vomiting, while not as profuse as in the mechanical obstructions of the small bowel, is a prominent symptom, and if the ileus persists, and decompression is not accomplished, the vomiting will become fecal. In well established paralytic ileus, the abdomen is silent. In paralytic ileus there is some general tenderness, but usually it is not as marked as in strangulation (and late) obstructions, unless peritonitis is present.

LABORATORY AIDS

Early in intestinal obstruction when the patient does not appear to be particularly ill, the laboratory will offer very little help. However, in high obstructions, when vomiting has been marked and dehydration and infection have occurred, there will be

increased N. P. N., usually increased CO_2 combining power of the blood, increased W. B. C., possibly increased R. B. C. and hemoglobin, with decreased blood chlorides and scanty urine of high specific gravity. In low obstructions and when the vomiting has not been so frequent and over a longer period, acidosis is more likely to be present. The kidney function in these cases should not be below normal, however, unless there was subnormal function before the obstruction, as it has been shown by the adequate administration of normal saline and glucose that the diminished urinary output will soon return to normal.

These chemical variations of the blood occur late, except in the very high obstructions, and the purpose of these examinations is to assist in the intelligent management of the cases, rather than to aid in the diagnosis.

X-RAY

There is one laboratory aid, the X-ray, which can be of such great help that it should never be omitted in suspected cases of intestinal obstruction, unless it is decided the patient is too ill to move, and in that event it is questionable if any procedure would benefit the patient. Normally, gas is not observed on the roentgen film of the gastro-intestinal tract after the third year of life, except in the colon and stomach. It is necessary for food and the intestinal contents to remain for sometime before gas could be visualized. Normally, there is such an intimate mixture between the gas and fluid, and such a rapid movement of the intestinal contents in the small bowel, that the gas cannot be seen. Therefore, for gas to be visualized, it is necessary for stasis of the intestinal contents to exist, and it is observed on the roentgen film only after stasis has existed for four or five hours. So, when gas is observed in the small intestine on the roentgen film, a diagnosis of intestinal obstruction usually should be made, especially if there is much distention of the bowel. A diagnosis of obstruction should not be made, if the bowel is not distended. When the acute obstruction is of the large bowel, the distention will be confined mainly to the colon; the gas is usually at the lateral borders of the abdomen and the long axis is generally vertical. In small bowel obstruction, the gas is observed in a more central location, and the long axis is usually transverse; the shadows are described as being of a herring-bone appearance and step-ladder arrangement, with fluid levels. With fluid levels an absolute diagnosis of complete mechanical obstruction of the small bowel can be made. Accordingly, the roentgenologist can often differentiate between obstructions of the small and large bowel, between mechanical and paralytic obstructions, and between complete and incomplete obstructions. When one can not decide whether the obstruction is in the large or small bowel, a roentgen film taken after a small, thin barium enema is helpful in the differentiation. A large enema given under much pressure would be dangerous, and it also would be dangerous to give a barium enema in late, large bowel obstructions. The pressure from a barium enema is greater than the intra-colonic pressure in obstructions. When there is marked distention of both the large and small bowel, a diagnosis of paralytic ileus should be made. Ordinarily, much information can be elicited from a picture taken with the patient recumbent, but additional information about fluid levels may be obtained with the patient upright or on the side.

It is not always possible to state definitely whether the obstruction is complete or not, but the greater the distention, the more likely is the obstruction to be complete. Incomplete obstructions are more difficult to diagnose than complete obstructions. If the obstruction of the large bowel is complete, there will be enormous distention and, after the gas below the obstruction has been evacuated, there will be no recurrence of the gas below the obstruction. In incomplete obstructions of the large bowel the distention is not so great, gas may still be evacuated from the rectum, and sooner or later one will observe gas below the obstruction on the roentgen film after enemata have been given. In small bowel obstruction, if the gas is observed to persist on the roentgen film in the colon after enemata have been given, the obstruction is incomplete; if no gas is observed in the colon after an enema has been given, the obstruction of the small bowel is considered to be complete. The X-ray films are difficult to interpret at times, so the statements concerning the information to be obtained from them must not be taken to mean that it will always be 100 per cent correct, but it is probably nearer correct to state that the information is true in about 70-75 per cent of the cases. The clinical findings and history must always be taken into consideration with the X-ray diagnosis.

PATHOLOGIC AND PHYSIOLOGIC CONSIDERATIONS

It has been calculated by Rountree (quoted by Wangensteen) that "7,000 c.c. of fluid enters the

bowel each day through the glands which empty their secretions into the alimentary canal, there being about 1,500 c.c. of saliva; 2,000 to 3,000 c.c. of gastric juice; 300 to 500 c.c. of bile; 500 to 800 c.c. of pancreatic juice and 3,000 c.c. of succus entericus. During obstruction of the intestines these secretions are thought to be increased."

The distention of the bowel results from fluids and gases. The amount of the distention will depend upon the location of the obstruction, whether the obstruction is complete or not, upon the amount of vomiting, the viability of the bowel, upon the infection and upon the amount of hemorrhage. Wangensteen says "the gas results from swallowed air (68 per cent); from diffusion of blood gasses into the intestinal lumen (22.4 per cent); and from the results of digestive processes and decomposition of the intestinal contents (9.6 per cent). More gas is formed from the putrefactive action of bacteria on carbohydrates than on proteins."

The loss of fluid and electrolytes from the upper intestinal tract (in high obstruction) results in increased N. P. N., increased CO_2 combining power of the blood, and a decrease of blood chlorides. Saline is not supposed to neutralize the toxins, but it acts as a substitute by replacing the loss of fluids and electrolytes, including sodium and chlorides.

Normally, absorption from the bowel is through the lymphatics and the radicles of the portal vein. It has been shown that the obstructed bowel is permeable to substances to which the normal bowel is not permeable, such as bacteria and toxins. The increased intra-enteric pressure, gangrene and peritonitis with resulting toxemia produces the bad effects. Normal absorption is decreased as the intra-enteric pressure rises. Blood loss may be significant in strangulation obstructions. The intra-enteric pressure should be reduced as soon as possible, and the outcome will depend to a great extent upon how soon the increased intra-enteric pressure is relieved. The time element is an important factor in intestinal obstruction; the longer the obstruction has been standing the greater the mortality rate will be. The bowel below a mechanical obstruction is acting normally or near normal. The bowel is not actually paralyzed in paralytic obstructions (unless extremely late) as shown by the contractions following spinal anesthesia.

DIAGNOSIS

What are some of the causes for delay in making diagnosis?

(1) Lack of physical findings (in the early simple obstruction) and the fact that the patient does not appear particularly ill.

(2) Enemata. Enemata may help to establish the diagnosis, but they are sometimes misleading, and in some cases may actually delay the diagnosis until it is too late. If results are obtained from the first enema, a second enema and perhaps a third one should be given.

(3) Opiates. They may completely relieve the pain, and prevent a diagnosis of intestinal colic. Opiates should never be given until after the diagnosis has been made. The use of opiates and cathartics in abdominal pain should be discouraged by physicians everywhere. Opiates confuse the diagnosis and cathartics may lead to disaster.

How are we to arrive at the diagnosis of a condition which has puzzled and continues to puzzle surgeons everywhere?

There are cases in which it is impossible to say definitely whether the bowel is obstructed or not, and, if obstructed, whether the obstruction is complete or incomplete. Particularly is this true when there is an inflammatory condition within the abdomen; and in patients with intestinal colic, if they have had one or two stools. One should take a careful history, bearing in mind the possibility of intestinal obstruction. Then, a careful examination with observation of external herniae or scars, auscultation of the abdomen, and roentgen films will usually settle the diagnosis. It must be remembered, however, that dense bands and adhesions may be causing obstruction, even though there has been no previous surgery.

In mechanical obstruction we must first make a diagnosis of intestinal colic, because mechanical obstruction, except in its very latest stages, is always accompanied by intestinal colic. However, intestinal colic is not always easy to diagnose. If increased peristaltic activity is not heard during the first examination, examine and auscultate the abdomen again and again. Be sure to ask the patient if he has ever had a similar pain following food indiscretion, as it may be a helpful point in establishing the fact that he has intestinal colic. Patients occasionally experience intestinal colic before defecation. A similar pain described by the patient certainly would focus one's thought on the possibility of in-

testinal colic. After intestinal colic is diagnosed, it is necessary to eliminate those conditions other than obstruction which can cause intestinal colic, such as allergy, food indiscretion and enterocolitis. With these conditions eliminated, it is then safe to diagnose mechanical obstruction. If the abdomen were auscultated more often during pain, the diagnosis of intestinal colic and obstruction would seldom be missed.

Rectal examination should be made in all cases of suspected mechanical obstruction. After a diagnosis of early mechanical obstruction has been made, if there is no tenderness or rigidity of the abdomen, it is fairly safe to assume that the obstruction is simple. On the other hand, if the intestinal colic is accompanied by tenderness and rigidity of the abdomen, a diagnosis of strangulation obstruction should be made; however, it is not always possible to determine whether the blood supply of the bowel in a given case has been interfered with or not.

We should never omit the X-ray in suspected cases of intestinal obstruction, whether mechanical or paralytic. The very fact that much gas may be expelled after enemata, or that the patient may have normal bowel movements, must never deceive us, because normal bowel movements may occur with complete mechanical obstruction.

In paralytic obstruction there will be marked distention of the abdomen, and the abdomen is almost or completely silent. Auscultation of the abdomen and roentgen films will establish the diagnosis in nearly all cases of paralytic ileus.

Anesthesia

In the good risk patient spinal anesthesia is probably the best of all the various forms of anesthesia, but in the poor risk patient a spinal anesthetic should not be used. When spinal anesthesia is contra-indicated, ethylene and local anesthesia are to be preferred, and if more relaxation is needed, some ether may be given. The stomach must be kept empty during inhalation anesthesia. Enterostomy could be performed under local anesthesia. For spinal anesthesia, pontocain is preferred to novocain when a more prolonged anesthesia is desired.

Mortality

The mortality rate usually varies with the condition of the bowel (extent of gangrene or degree of distention), with the duration of the disease (the mortality rate increasing about 1 per cent with every hour of delay in acute mechanical obstruction), with the general condition of the patient (whether or not he has peritonitis, toxemia, shock, fever, dehydration, etc.), with the condition causing the obstruction, and with the rationale of the therapeutic procedures instituted. In most large series of acute mechanical obstruction the mortality rates are as high as 30 per cent or more, one clinic reporting a mortality rate as high as 70 per cent. The mortality rate is always high in late mechanical obstructions; and also in mesenteric thrombosis, unless the condition is recognized early, and a small segment of the bowel is involved. Strangulated external herniae with viable intestine carry the lowest mortality rate.

In paralytic ileus resulting from peritonitis, the mortality rate is necessarily high, the rate depending more upon the peritonitis than the ilieus, but there should be virtually no mortality from paralytic ileus itself, with proper treatment.

Treatment

The treatment will vary considerably, according to the experience and the training of the attending physician. There are two general methods of treatment: first, conservative decompression, and, second, operation.

There are several measures which are used in conjunction with either conservative decompression or operation, which are extremely helpful and may at times be life saving. Saline solution (normal or hypertonic as indicated), Hartman's solution, glucose or Ringer's solution may be used. Saline is absolutely essential if there has been much loss of fluids. Particularly is this true in high obstructions. It should be given in the pre-operative preparation and in the post-operative care. It is of valuable aid in restoring kidney function. Its value is in bettering the patient's general condition as it does not actually neutralize the toxins—it neutralizes their effects.

Glucose is absolutely essential if there is acidosis or diminished urinary output, but it should be given before these symptoms have occurred. Therefore it is important to give both saline and glucose early in these cases, before they have become dehydrated, and before marked chemical variations of the blood and urine have occurred.

Blood transfusion may be indicated in all types

of obstructions, but it is particularly useful in strangulation obstructions and mesenteric thrombosis, where the blood loss factor may be significant; in chronic obstructions, as there are often anemia and low blood protein; and in paralytic obstructions with peritonitis. Blood transfusion should never be omitted when the patients are in or near shock, as they may be in cases of mesenteric thrombosis, strangulation obstructions or obstructions accompanied by peritonitis.

Conservative decompression (Wangensteen suction or duodenal suction. Miller-Abbott method of intubation of the intestines). Wangensteen suction is adequate for decompression of most cases of paralytic ileus. The Miller-Abbott intubation of the intestines has an advantage over Wangensteen suction in that it more adequately drains the bowel above the obstruction, but it requires several hours to pass this tube down the intestines—and while waiting for the tube to pass in mechanical obstruction, the bowel may have become devitalized and the condition of the patient becomes critical or hopeless.

Conservative decompression may be employed in most cases of incomplete simple obstruction; and it may be tried for short periods of time in some cases of complete simple obstruction, provided the patient is checked often, and the symptoms are improving. When employing conservative decompression in complete, simple obstruction, the surgeon is assuming a great responsibility (he is assuming also that he understands the pathology well enough to know that the suction has a good chance to relieve the obstruction). It is absolutely essential to recheck the condition with X-ray films at least every four to six hours unless recovery is definitely assured. Conservative decompression must not be continued in cases of simple obstruction when there is no evidence of improvement. In strangulation obstructions, conservative decompression should be used only in conjunction with operation. Oxygen inhalations are useful to help relieve distention when used with suction.

Paralytic Ileus. Conservative decompression is the treatment *par excellence* in paralytic ileus. In addition to conservative decompression in paralytic ileus, pitressin, turpentine stupes, etc., are often beneficial. If pitressin is not effective, prostigmin may be tried. Most authorities state that it is probably not advisable and may be dangerous to use strong intestinal stimulants in peritonitis; however, there are others who believe that pitressin is not only indicated in paralytic ileus with peritonitis, but that it should be given often. Rectal suction may be used in conjunction with duodenal suction in paralytic ileus, but the procedure as a rule is not very effective.

Cautions to be Observed When Employing Conservative Decompression:

1. The loss of fluids and electrolytes must be replaced.

2. The patient must be examined frequently when employing conservative decompression in mechanical obstruction, as the condition may change enough in a short period to demand prompt surgery.

3. When using conservative decompression in mechanical obstruction, do not use morphine, as it is necessary to know whether the patient is having pain or not.

Indications for Conservative Decompression in Intestinal Obstruction:

Conservative decompression has its greatest field of usefulness in paralytic ileus; in incomplete mechanical obstructions, particularly those occurring early in the post-operative period, and in conjunction with surgery. It is employed for short periods with caution in certain selected cases of complete simple mechanical obstruction. Conservative decompression, particularly the Miller-Abbott method, can be employed as a diagnostic measure as well as a therapeutic agent.

Contraindications to Conservative Decompression:

1. Strangulation obstructions, except in conjunction with operation.

2. Marked distention of the colon from acute mechanical obstruction of the colon, because it acts essentially as a closed loop.

Indications of Successful Conservative Decompression:

1. Decrease of, or complete relief of, distention.

2. Decrease of, or complete relief of, pains.

3. In complete obstructions, the reappearance of gas in the colon on roentgen films. There should also be a decrease in size of distended bowel.

4. The appearance of barium on the roentgen film beyond the former site of obstruction, the barium being injected through the Miller-Abbott tube while it is still *in situ*.

5. A decrease in the amount of fluid obtained by

suction and it should not have the appearance of lower intestinal contents.

6. With temporary discontinuance of suction, there must be no return of the distention or discomfort.

OPERATIONS

The greatest danger of operation is the possibility of infection and the sudden release of toxins.

Operation should be performed in all cases of strangulation obstructions; in all cases of complete, simple obstructions, if the patient is seen early and his condition is good, and in those cases of incomplete obstruction where conservative decompression would not be expected to relieve the pathology. There are certain cases of simple obstruction of the small bowel which can be relieved by conservative decompression, but ordinarily delay is not justifiable in complete obstruction. When in doubt in early cases, operate. Do not delay operation long if X-ray is not helpful; if you diagnose or are very suspicious of mechanical obstruction before X-ray findings are positive, operate on suspicion. Whenever one decides to use conservative decompression instead of performing an operation in simple obstruction, he is doing so with considerable risk. Conservative decompression in conjunction with operation is of invaluable aid.

The type of operation should vary according to the findings and the condition of the patient. In most simple obstructions all that is necessary is to release or remove the obstructing agent; however, if there is much distention or toxicity, an enterostomy (Witzel) in addition is advisable. Enterostomy should be performed more often following resection, and following the release of bands and adhesions. When there is a bloody discoloration of the peritoneal fluid, look for strangulation. Never leave gangrenous bowel in abdomen. When part of the bowel is not viable it is necessary to decide whether to do a primary resection and anastomosis, or to exteriorize the bowel; the condition of the patient would be the deciding factor. Exteriorization is not advisable in obstructions high in the small bowel. To quote from Wangensteen, "On the whole it may be said that it is much safer to exteriorize devitalized bowel, cut it off when the skin is closed, and tie in catheters into the proximal and distal loops, than to do a primary resection". In obstruction of the large bowel, colostomy should be routine. If the small bowel is gangrenous and the condition of the patient is not good, exteriorize the bowel, or excise the gangrenous gut and do a double-barrel enterostomy. When there is not too much distention it is well to defer for a few days excision of the exteriorized gangrenous bowel in order to minimize the danger of contamination and infection. When there is tenderness of the abdomen, it is better to treat the obstruction as strangulated. In late obstructions thoroughly prepare the patient before operating. Some reports are rather favorable to the use of anti-gas serum in conjunction with surgery. Aluminum paste is helpful in preventing excoriation of the skin from irritation of the intestinal contents.

If it is decided to do a primary resection, an absolutely rigid aseptic technique must be followed. The edges of the skin are potentially infected, and they should be covered at all times. To permit the intestines to lie against the uncovered skin is a break in technique that should never occur. Evisceration and excessive manipulation should be avoided. There should be no sponging or mopping with the hands; instruments should be used instead. In suturing the intestines it is necessary to keep a certain distance from the edge with each suture, and to place the stitches the same distance apart, because if these rules of suturing are not observed, then one will never have any definite idea of the water tightness of the suture line. By careful attention to detail and technique in suturing, one should be able to make a water-tight closure. Of course, in doing a resection, it is essential to resect enough of the proximal bowel so that one will have viable tissue to suture. It is also necessary that enough fat be excised from the mesenteric borders of the ends of the bowel, so that one will not be suturing fat instead of intestine when the closure is made. For most purposes, a continuous suture is satisfactory, but where reinforcing is to be done, Halsted mattress sutures are preferred. If silk is used for the mucosal suture, the knot must be tied within the bowel. Silk is preferable for the serosal suture material, and the smallest size that has the necessary strength should be used—either number 4 black twisted silk, or number 0 or 1 serum-proof silk. Enough time must be taken to carry out a careful and aseptic technique. Certainly there should be no waste of time, but it is a mistaken idea to think that one cannot take enough time to assure a water-tight closure, and enough time to avoid soiling. If the patient will not stand a resec-

tion properly done, then a less formidable procedure should be performed. Zephiran is probably one of the most efficacious of the present-day antiseptics; it is splendid for preparing the abdomen and also for washing the gloves while doing intestinal surgery.

CONCLUSIONS

Delay is the chief cause for the high mortality rate in intestinal obstruction.

The use of the stethoscope in all cases of abdominal pain, and the frequent use of the X-ray in all cases of suspected intestinal obstruction, should materially reduce the mortality rate.

Suspect intestinal obstruction in all cases of intestinal colic, until proven otherwise.

Enemata should be regarded with reservation when used as a diagnostic agent.

Opiates must not be given in cases of abdominal pain when there is any doubt about the diagnosis.

Whenever there is doubt about the patient's ability to withstand a resection, it is advisable to exteriorize the bowel.

When in doubt as to the proper method of treatment, particularly in the early cases, operate.

Conservative decompression should be employed in all cases of obstruction; it is the treatment of choice in paralytic ileus and in most cases of incomplete mechanical obstruction; it reduces the need for enterostomy.

Operate early in all cases of strangulation obstruction.

Much delay in operation is ordinarily not justifiable in complete obstruction.

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509 Medical Arts Bulding.

INTRA-ABDOMINAL HERNIA.

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Hernias about the duodenal-jejunal flexure have been classified as duodenal, para-duodenal (right and left), retroperitoneal, internal and intra-abdominal hernias. Alexander in 1937 suggested that the term "intra-abdominal" hernia be used, as para-duodenal was confusing, since the hernia was in no way associated with the duodenum. The condition is characterized by the protrusion of the small intestine through an anomalous opening within the abdominal cavity.

The condition may occur on the right or left side, and to date there have been about 200 cases reported, in the ratio of about three on the left side to one on the right. Approximately 60 per cent of the right side lesions have been operated on with a 55 per cent mortality rate. The figure is not as high for lesions of the left side. The case of intra-abdominal hernia here reported occurred on the left side, was operated on and made an uneventful recovery.

The condition was first described by Neubauer in 1776, the right side type being first described by Klob in 1861. Moynihan in 1899 described nine folds and fossae about the duodenal-jejunal flexure in which these hernias may occur, namely:

1. The superior duodenal fossa.
2. The inferior duodenal fossa.
3. The posterior duodenal fossa.
4. The duodenal-jejunal fossa.
5. The inter-mesocolic fossa.
6. The infra-duodenal fossa.
7. The para-duodenal fossa, or fossa of Landzert.
8. The mesenterio-parietal fossa, or fossa of Waldeyer.
9. The para-jejunal fossa of Broski.

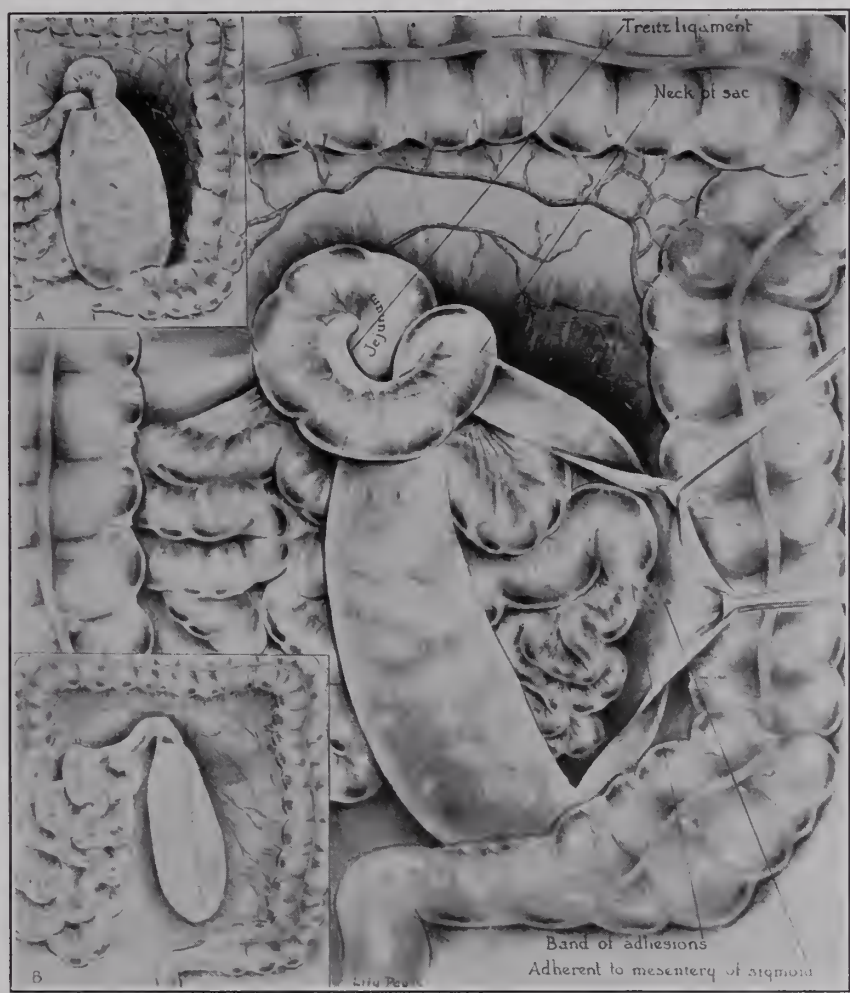
Moynihan states that the left para-duodenal hernia occurs in the fossa of Landzert, or para-duodenal fossa. To quote: "In its typical form, seen most frequently in the foetus or the newly born, the fossa may be thus described. It is situated to the left, and some distance from the ascending limb of the duodenum. The fossa is caused by the raising up of a fold, the plica venosa, by the inferior mesenteric vein—a fold which may be not inaptly described as a mesentery of that vein. Behind, the sac is bounded by the parietal peritoneum, covering the psoas, the renal vessels, the ureter, and portion of the left kidney. The plica venosa consists of a vertical and a horizontal portion, the vertical being to the left and below the fossa, and the horizontal bounding the fossa above. The inferior mesenteric vein forms a bow-shaped curve as it arches over to the right above the duodenal-jejunal flexure."

Cofer and Philips state: "The para-duodenal fossa, described in 1871 by Landzert, lies to the left of the ascending limb of the duodenum and is bound above by a fold containing the left colic artery; below

by a mesocolic fold, and to the right by the mesentery of the small intestine."

Numerous theories have been advanced as to the origin of these fossae, namely: Formation of pockets during intestinal rotation; fusion folds formed during foetal life; elevation of the peritoneum by blood vessels; physiologic adhesions as advanced by Toldt; failure of the root of the mesentery to unite with the posterior abdominal wall. Pan in 1935 showed that the formation of the blood supply to the colon during foetal life has some definite relation to the formation of these folds and fossae.

Moynihan describes these characteristics as being invariably present in left-sided hernia: (1) The presence of the inferior mesenteric vein in the neck of the sac, the extent of the margin formed by the vein being variable. (2) "The hernia spreads in the outward direction towards the descending mesocolon or upward into the transverse mesocolon or both." (3) The hernia sac consists of a single layer of peritoneum. The posterior parietal peritoneum is closely united to the wall of the sac; thus the hernial contents will have two layers of peritoneum in front of them and one layer behind.



The drawings show the hernia with the transverse and descending colon being retracted. The drawing in the left upper corner shows the hernia sac before it was opened. The drawing in the center shows the sac after it was opened and shows the point of obstruction. The drawing in the left lower corner shows the sac after the hernia has been reduced and the sac has been closed.

The condition has rarely been diagnosed before operation. Kummer in 1921 first visualized a left intra-abdominal hernia by X-ray. Alexander in 1937 reports five cases in which correct diagnosis was made by X-ray. Several of the reported cases were found at autopsy or in the anatomical laboratories.

The majority of the clinical cases of intra-

abdominal hernia have presented the signs and symptoms of acute intestinal obstruction. Some of these cases have been chronic. In certain instances a definite mass has been felt. In the chronic cases, the symptoms may simulate chronic duodenal ulcer. In the case here reported symptoms always occurred while the patient was standing and he would obtain immediate relief on reclining. This was the striking symptom to me, as it has been noted in several other reported cases. The majority of cases have occurred in the male sex.

The treatment of the condition is surgical with reduction of the hernia and obliteration of the sac.

Case Report

The patient was a white male machinist, age twenty-eight. He was admitted to the Union Memorial Hospital, Baltimore, Maryland, June 15, 1937. Family history was of no importance. He complained of severe pain in left side of his abdomen of one hour duration, associated with nausea and vomiting. He stated that during past four years he had had numerous attacks of severe pain in his lower abdomen just to the left of his umbilicus. The pain radiated downward into his scrotum. About three years ago he entered a hospital where he had many diagnostic tests, including a gastro-intestinal series, which was reported as negative; and was told he had rheumatic fever and was advised to have his tonsils removed, which he did with no relief. He complained of some shortness of breath and palpitation for past four years. No precordial pain, and no orthopnea or ankle edema were noted. Physical examination showed a well-nourished and well-developed man. There was a soft blowing systolic murmur heard over the aortic area. Heart was enlarged to 1 cm. outside the mid-clavicular line and down as far as the sixth interspace. Blood pressure was systolic 94, diastolic 58. His abdomen was negative except for some tenderness below and to the left of umbilicus. Otherwise his physical examination was negative. His urinalysis was entirely negative. Leukocytes were 8,800, with 86 per cent polys. Non-protein nitrogen was 26, blood sugar 71.4. Wassermann was negative. An electrocardiograph was done on June 15, 1937, which showed first degree heart block typical of type seen in rheumatic heart disease. Intravenous urography and barium enema were reported as showing normal kidneys and normal large intestine.

The patient remained in the hospital five days. Temperature rose to 100 degrees each day. He was discharged on June 15 with diagnosis of rheumatic heart disease and unexplained abdominal pain.

He returned to Out-Patient Department on June 28, 1937, on which date I first saw the patient. On this date the history was obtained that all his attacks had occurred while standing and that he could obtain relief upon lying down or bending forward while sitting. He was readmitted to the hospital on June 29, 1937, and a gastro-intestinal series done on June 30 was reported as follows: "No evidence of a lesion in the esophagus, stomach or duodenum. Six hour examination indicates normal motility. At twenty-four hours the barium was distributed throughout the colon. The appendix is not visualized. There is some tenderness several inches medial to the descending colon at approximately the level of the fifth lumbar vertebra and the top of the sacrum." His urinalysis was negative. Leukocytes were 6,000 with 78 per cent polys. Physical examination same as on previous admission.

On July 3, 1937, an exploratory laparotomy was done. The abdomen was entered through a left rectus muscle splitting incision. On opening the peritoneal cavity, a large mass was seen which filled the left side of the abdomen. It was adherent to the mesentery of sigmoid. On further exploration, it was seen that this mass was an internal hernia. The sac was opened. At the point where the sac was adherent to mesentery of the sigmoid, there was a band of adhesions around the small bowel, causing a partial obstruction. The bowel was dilated above this point and contracted below. These adhesions were divided. The hernia sac was emptied of its contents. Part of the sac was cut away and the remaining part was closed, this being sutured to the posterior peritoneum in its closure. The abdomen was closed in layers with catgut. The post-operative course of the patient was uneventful and he was discharged from the hospital on July 17, 1937.

The patient was followed in Out-Patient Department until September 14, 1937, at which time he was discharged. He was last heard from in August, 1938, well and working.

Conclusion

Intra-abdominal hernia is a rare condition whose surgical importance must not be overlooked. The diagnosis may be obscure except for one characteristic and significant symptom—that the pain, however

severe when standing, is relieved when the patient lies down.

I am indebted to Dr. Harvey B. Stone, of Baltimore, for his help and advice with this case.

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PLACENTA PREVIA.*

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Implantation of the placenta in the lower uterine segment is regarded as one of the most serious complications to be met with in the practice of obstetrics. The development of our scientific knowledge of placenta previa, its etiology, and the accepted methods of treatment will be discussed in this paper.

In the *classification* of placenta previa there are three varieties: first—*central,* where the placenta covers completely the internal os; second—*partial,* where part of the opening of the cervix is covered by placenta; third—*marginal,* where a part of the placenta is implanted in the lower uterine segment but the edge does not extend beyond the margin of the internal os.

Placenta previa is known to the laity as the condition in which "the after-birth lies ahead of the baby". This is a fairly accurate description of the mechanics involved, except that it is not the advance of the fetus which ploughs loose the placenta but the widening of the lower uterine segment which retracts and tears the wall of the uterus away from the placental attachments.

The incidence of placenta previa varies in different localities. Over a period of twenty years, out of 59,321 deliveries at the Sloan's and Woman's Hospital in New York City there were 400 cases of placenta previa, making the incidence 1 in 148 cases.

Etiology: The exact etiology is not known. A large number of women have had previously some endometrial disease or disturbance, the result of abortion, manual removal of the placenta, or traumatic manipulation. Multiparae are affected about ten times as frequently as primiparae. Chronic endometritis is suggested as a possible causative factor. There are numerous theories as to the etiology of placenta previa. Strassmann suggests one of the most reasonable theories that we have. He said that an endometrium with chronic inflammatory changes or with premature senility and atrophy presents so poor a vascular bed for the placenta that the latter is obliged to spread out over a proportionately larger surface in order to receive sufficient blood supply for fetal needs. This increases the likelihood of its encroachment upon the internal os.

Symptoms: Painless hemorrhage is the first and most characteristic symptom. This occurs as a rule in the last trimester of pregnancy, and usually in the eighth month. Hemorrhage may follow some form of traumatism, as from coitus, a vaginal examination, or a fall. More often, however, it appears without the slightest warning, either while the pa-

*Read before the Norfolk County Medical Society, January 23, 1939.

tient is occupied with ordinary household duties or even when asleep.

Diagnosis: Hemorrhage without pain at any time in the last three months of pregnancy should suggest placenta previa. Abdominal examination may show some type of malpresentation, but most often the fetus is presenting normally. As a rule, fetal heart sounds are unaffected by placenta previa. An effort to impress the head into the pelvic brim discloses the presence of an indefinite mass or obstruction which prevents its engagement. If the head is found to be engaged, the bleeding is unlikely to be from a placenta previa.

X-ray visualization of the placenta or of the placental site in the uterine wall has been attempted as an aid in diagnosis, but no practical method of direct visualization has yet been developed.

In the diagnosis other sources of bleeding should be kept in mind; for example, premature separation of the normally implanted placenta, polyps, varicose veins, the bladder, carcinoma of the cervix. Since premature separation of the normally implanted placenta is usually manifested by the evidence of hemorrhage and by severe and continuous abdominal pain, it is to be differentiated from placenta previa in that the latter occurs with painless hemorrhage.

Examination of the Cervix in Placenta Previa: The cervix is usually much enlarged, soft and spongy, and the external os and canal readily admit one or two fingers. The finding of a rigid canal and internal os suggests that there is no placenta previa, because a placenta so located engorges the site with blood, making it soft and succulent. Vaginal examination establishes the diagnosis of placenta previa. The examiner should have everything in readiness to intervene should there be a sudden hemorrhage following the examination.

Mortality: The maternal mortality is high and the fetal death rate higher. In the past ten years there has been some diminution in the general death rate, due to earlier diagnosis, better pre-operative and operative procedures, including blood transfusion and Cesarean section.

Treatment: The most significant advance in the treatment of placenta previa has developed in the past quarter of a century. In this time the better appreciation of the consistent treatment of this complication is based on the following sound surgical principles: *First.*—The prevention of infection. *Second.*—Prevention of unnecessary hemorrhage, and adequate replacement of blood loss by transfusion. *Third.*—Avoidance of unnecessary trauma by too many vaginal examinations for the purpose of diagnosis, and from poor operative technique in the treatment.

The use of the vaginal pack to control the bleeding is mentioned mainly to condemn, because it does not control but serves merely to conceal the bleeding; it may further separate the placenta, and it is a potent source of infection in many of these cases.

Pregnancy should be terminated as soon as the diagnosis has been established to safeguard against any further hemorrhage which may prove fatal. Williams said, "There is no single method of treatment applicable to all cases". In the patient's home where facilities for transfusion and operative means or procedures for delivery are lacking the bipolar podalic version of Braxton Hicks offers the best outlook for the woman who has a central or lateral placenta previa. The fetal mortality is high with this procedure.

The patient and her baby in the hospital have a far better outlook. Her general physical status should be estimated, blood pressure checked and blood count made; prospective donors should be grouped and matched with the patient's blood for a probable transfusion. A prophylactic transfusion should be given (500-750 cc.) prior to undertaking any operation whenever the patient's condition makes it advisable.

In a marginal placenta previa simple rupture of the membranes may be sufficient if the cervix is dilating, the bleeding not excessive and the patient not yet affected by the loss of blood. If the bleeding is not stopped the introduction of a Voorhees' or Barnes' bag should be tried. Even with a lateral placenta previa this is an excellent procedure. Rupture of the membranes should always precede the insertion of a bag in placenta previa. Rupture of the membranes is rarely successful unless the patient is in labor. The use of a bag through an undilated cervix in a patient who is not in labor and who is not bleeding is not as safe for the baby as an abdominal section. The risk to the mother is added bleeding which the abdominal operation does not entail. In exceptional cases of a rigid cervix the bag merely stops the bleeding and is often expelled only to cause more bleeding, while the operator is unable to effect a prompt delivery. Mal-positions or mal-presentations are common sequelae of the use of bags for any purpose,

so that version is usually necessary. In all cases of vaginal delivery the application of an abdominal binder which can be tightened as the delivery progresses will prove helpful as an aid in controlling bleeding.

Titus advocates the application of a Willetts' forceps for direct application to the infant's scalp, after which a weight is suspended from the handle as a substitute for a bag in these cases. The advantage it offers over a bag is that it impacts the head, thus tamponing and checking hemorrhage and also avoiding mal-presentations.

In the treatment of central placenta previa, if the child is dead or so premature as not to be viable, the bipolar version of Braxton Hicks is the best procedure to select. On the other hand, if the fetus is viable Cesarean section offers the most promising outlook for mother and child.

The advantages claimed for delivery by Cesarean section in most cases of central placenta previa and in certain selected cases of partial and marginal varieties are that, first, delivery without allowing the lower uterine segment to dilate tends to retain the limited hemostatic power which it possesses; second, delivery is quickly accomplished, reducing blood loss before and during delivery. Hemorrhage can be more promptly and positively controlled; third, Cesarean section, particularly with incision in the lower uterine segment, allows inspection of the placental site. Active bleeding from sinuses can be controlled by suturing and packing under direct vision; fourth, undesirable or dangerous complications resulting from trauma or vaginal delivery are avoided; fifth, maternal morbidity and infection, the result of manipulation and contamination by vaginal procedures, is eliminated; sixth, fetal mortality, especially in placenta previa, is reduced.

To summarize, it may be stated that:

1. Placenta previa constitutes one of the most serious complications to be met with in obstetrical practice.

2. Patients should be treated with the sound thought of preventing infection, unnecessary hemorrhage, surgical shock and excessive trauma.

3. Blood transfusion offers the most effective means to replace the blood loss and in preventing surgical shock from acute hemorrhage.

4. Adequate replacement of blood to combat shock and overcome any loss of blood should precede any delivery by vagina or Cesarean section. Prophylactic transfusion to combat any serious complication of hemorrhage during delivery may prove life saving.

5. Cesarean section is a valuable means of delivery of patients with central placenta previa and selected cases of marginal and partial placenta previa. Cesarean section has aided strikingly in reducing fetal mortality.

6. Transfusions following the delivery may reduce the occurrence and danger of post-partum complications by combating the anemia and improving the general condition of the patient.

7. For the safety of the patient she should be transferred to the hospital once the diagnosis is made.

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THE CHEMISTRY OF INTELLIGENCE.

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The chemical aspects of mental activity depend upon two factors: the chemical make-up of the brain tissue and the chemical composition of the blood which nourishes the brain.

The brain is an organ made up of many parts, each different in structure and function, yet harmoniously integrated into a unit of amazing versatility. In its last analysis the brain is a chemical compound which depends upon chemical reactions for its function. Among the many chemical compounds that enter into brain function may be mentioned calcium-magnesium and sodium-potassium ratios, hydrogen ion concentration and oxidation. Too great a shift from equilibrium in any one of these chemical systems results in manifestations of brain function disturbance.

Drs. Leo Alexander and Abraham Myerson carried out a series of chemical estimations of brain tissue, employing the spectroscope in their studies. The following facts were brought to light:

1. The normal cerebral gray matter of the human adult is richer than the white matter in iron, calcium, magnesium and sodium, while normal white matter is richer in phosphorus.

2. The brain of the new-born human infant is richer in most elements, but poorer in iron, than that of adults.

3. In edema of the brain there is an increase in sodium and calcium.

4. In disturbed brain function there is a decrease in minerals.

Dr. Helen Hopkins, very much interested in the chemical substance known as cholesterol, found that in cases of disturbed brain function there was a decrease of this substance. Other investigators have found that chemical examination of the brain in cases of mental disturbance has indicated deficiencies in neutral sulphur and catalytic iron.

The efficiently functioning brain also requires proper amounts of water and oxygen. Disturbance in the water balance in the brain results in altered function. Too little or too much water is disastrous, not alone resulting in decreased mental efficiency, but when this balance is profoundly upset, resulting in more serious symptoms such as stupor, coma and delirium. Water holds the essential chemicals in solution and in the required amount of concentration, and a shift in either direction may result in an upset of brain function.

The water balance in the brain is also intimately bound up with the acid-base equilibrium. Too much acidity or too much alkalinity is almost immediate in its effects upon the brain. The epileptic brain is an alkaline brain, and a brain given to convulsions and confusion in thought. On the other hand, the diabetic brain is an acid brain with a similar decrease in the processes of mentation. If the acid ions are too concentrated the function of the brain is brought to a standstill with resultant stupor and later coma.

Oxygen is a most important element in the brain as far as intelligence is concerned. This fact came to light in a most interesting manner. In 1862, the meteorologist Glaisher and the Balloonist Coxwell made a famous ascent. In forty-eight minutes they reached an altitude of 28,000 feet, when Glaisher found that he could no longer read his thermometer or his watch. Coxwell noticed his companion's condition and brought the balloon down.

A similar thing happened to Tissander who, when he ascended to a height of 26,000 feet, was overcome by stupor. He found that "body and mind became feebler, little by little, gradually and insensibly." These were the first studies on the effects of decreased oxygen in the brain and intelligence. They were crude beginnings, but they served as a starting point.

A more scientific study of the effects of oxygen deprivation on the brain were made by Drs. Haldane and Kellas. They entered a steel chamber and the air was pumped out until the pressure reached 320 mm. Hg. which is equivalent to 24,500 feet. At this point Haldane's mental reactions became so impaired that he could no longer write or make observations. His reply to all questions was "keep it at 320."

After an hour and a quarter their associates outside the chamber became worried and put messages up to the window, but Kellas only smiled and Haldane gave the same answer, "Keep it at 320." These were obviously the reactions of persons with impaired intelligence, artificially impaired by lack of oxygen.

Finally, Kellas raised the pressure to 350 mm. which is equivalent to 21,500 feet. This meant more oxygen was avilable. And it meant that some of their mental capacities were returning, but evidently not all, for Haldane took up a mirror to examine his lips, looking at the back instead of the front of the mirror.

Then the pressure was raised to 450 mm. (14,500 feet), and Haldane's mind cleared as more oxygen became available. He had been entirely unaware of the passage of the hour and could not recall anything that had occurred during this time.

Dr. Barcroft also evaluated the effects of oxygen on intelligence by spending six days in a glass chamber in which the partial pressure of oxygen varied, corresponding to altitudes from 10,000 to 18,000 feet. There were minor changes in the performance of simple mental tests of memory, multiplication and discrimination. He could not make the necessary discriminations in gas analysis, yet could carry out clear commands if they were given for each moment. There was distortion of judgment and value, and matters of vital importance appeared trivial.

Another scientist who made tests on the effects of decreased oxygen availability was Dr. Lawson who

gave five subjects tests for speed of sorting, speed of tapping, accuracy in aiming, substitutions, analogies, distorted sentences and the same-opposite test. He noticed that the average alterations in behavior were not significant until the percentage of oxygen reached 50 per cent of normal, but at that point the changes were rapid and pronounced. All subjects noticed difficulty in reading at the lower percentages, due chiefly to impaired comprehension and concentration, as well as to physiologic disturbances such as headache.

Similarly, Dr. Tanaka by experimentation found that the deficiency in mental and physical work is due chiefly to lack of oxygen, that there were great individual differences, that the effect is more marked in the mental than the physical work, that there is a critical point where a sudden change occurs (at about 428 mm. Hg., or 15,000 feet) and that the quality of the work is most affected, i.e., greater fluctuations occur in the accuracy of performance than in speed.

The most recent work on the chemistry of oxygen and intelligence was done by Dr. S. H. Kraines, who subjected thirty persons to tests involving decreased oxygen availability and mental activity. His results are thus summarized:

There is a definite drop in intelligence (as measured by the army alpha test) while breathing 10 per cent oxygen (corresponding to an altitude of 20,000 feet). The decrease in score varies greatly with the subject, varying from a minus 1 to a minus 54. Only one subject increased his score under diminished oxygen intake.

The first part of the test showed no loss in score under oxygen lack in spite of the increased number of errors. This was attributed to the respiratory and circulatory adjustments which compensated for the lack of oxygen.

The subjects with the highest scores showed the greatest drop in score under oxygen lack.

The increase in number of errors, in general, paralleled the decrease in score.

Subjective evaluations of one's own abilities while under low oxygen tensions are wholly inadequate. Many subjects who thought there was little effect, did poorly and *vice versa.*

The second factor in the chemistry of intelligence is the chemical make-up of the blood that feeds the brain. Within the past few years methods have been developed to study the biochemistry of brain blood in a really scientific manner. Drs. Abraham Myerson and Roy D. Halloran, in 1927, described a new method for studying the brain metabolism in health and disease by puncture of the internal jugular vein. A few years later a technic was evolved in which the carotid artery was punctured to enable them to investigate the changes that take place in the chemistry of the blood as it enters and leaves the brain. It seems logical that a study of the blood directly before entering and immediately after leaving the brain, before admixture with the blood from other parts of the body, might give information as to brain activity.

Drs. Myerson and Halloran found that sugar disappeared in the transit between the internal jugular vein and the carotid artery. This means that the brain requires sugar for its proper function. Too little or too much sugar in the blood supply to the brain results in altered brain function. Dr. Katzenelbogen has shown that increased sugar metabolism by the brain is manifested in various types of insanity. Too little sugar in the blood flowing to the brain results in reduced mentation.

The mineral composition of the brain blood is also of value in giving us an inkling into the problem of intelligence. Calcium and phosphorus are required for the maintenance of normal irritability of all nervous tissue. In cases where these elements are decreased there is a resultant sluggishness of the mental processes. Where they are increased there is an impulsive over-activity of mentation and confusion. These minerals are increased in cases of insanity of almost all types.

Dr. Walter Freeman, who has been a student of brain function for a great many years, some eight years ago read a paper before the Section of Nervous and Mental Diseases of the American Medical Association in which he discussed the implications of psycho-chemistry. Psycho-chemistry is a very recent science; it involves the chemical evaluation of the mental processes.

Mentation or thinking is essentially a chemical process. It is a rather complicated chemical process which involves, among many others, the consideration of electric potential, oxidation-reduction, aggregation and dispersion, hydration and dehydration, sodium-potassium and calcium-magnesium ratios and hydrogen ion concentration. These must function within normal limits, and too great a shift of any of these in either direction is manifested in disordered function of the brain.

Perhaps the two main chemical processes involved in brain function are the utilization of sugar and oxygen. Both are found in the chemical make-up of the brain, and both are brought to the brain by its blood vessels. Sugar requires oxygen for its conversion into lactic acid, in which form it is still further broken down. Required also for this essential chemical reaction are iron, manganese and copper, which are found in considerable quantities in the brain.

The chemistry of intelligence is by no means completely understood. However, it is known that sugar and oxygen appear to be the main requisites with the catalysts, iron, copper and manganese to help the chemical reaction along. Thinking and intelligence, therefore, may be said to depend upon the breaking down of sugar in the brain in the presence of oxygen. If any of these two elements is notably decreased, utter stupidity is the invariable results.

Dr. Albert P. Mathews, Professor of Biochemistry in the University of Cincinnati, has speculated interestingly on the chemistry of thought: "Are our thoughts also at the bottom electrical? Whenever a nerve impulse sweeps over a nerve it is accompanied by an electrical disturbance, and this disturbance is the surest sign of life. When the nerve impulses play back and forth over the commissures of the brain they are accompanied by this pale lightning of the negative variation. Is that pale lightning what we recognize as consciousness in ourselves? It would seem that there must be some psychic element in every electron if the atoms are made of electrons. There must be some psychic disurbance in every union of hydrogen and oxygen to make water and in every pulse of light and of the wireless telegraph. When an electron moves, it generates a magnetic field; does it also generate a psychic field?"

These thoughts go into the atomic chemistry of mentation, a field which as yet has not been tapped. However, some interesting beginnings are being made. Perhaps the recently perfected electro-encephograph will give us a better insight into the electro-chemical basis of intelligence.

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JOHN SNOW'S WORK ON CHOLERA.

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This paper was one prepared by a sophomore student in the Medical College of Virginia as a term essay on an assigned subject in Preventive Medicine and Public Health. It is of value to the average medical man because it shows how a practicing physician could, by his own unaided powers of observation, throw light on the epidemiology of cholera, even before the organism had been discovered. His work has not been improved upon to the present day and is now recognized as a classical example of good epidemiological procedure.—EDITOR'S NOTE.

John Snow was born in England in 1813. He started his medical education as an apprentice to Mr. William Hardcastle, surgeon. He first became interested in cholera in 1831 when he was sent to New Castle to attend the suffering. In 1836 he entered the Hunginton School of Medicine in London. By 1838 he had passed his examinations and was qualified in medicine. Later he attended the University of London, from which he received his M. D. degree in 1843.

In 1848 Dr. Snow began his study of the propagaion of cholera. He considered that the cause must be a poison acting on the alimentary canal through direct contact with the canal mucosa. This view led him to consider the nature of the poison and the possible media through which it could be conveyed. This in turn led him to consider water as the chief medium of transportation. So thoroughly had he studied water as a medium of transportation and so thoroughly was he convinced in this, that during the epidemic of cholera in London in 1854 he advised the removal of the pump-handle of the water supply as the grand prescription. The pump-handle was removed and the plague immediately subsided.

In his further studies he noted that the disease traveled by the great tracks of human intercourse, never going faster than the people traveled. In extending to a fresh island or continent it always appeared first at a seaport. It never attacked the crew of a ship going from a country free of cholera to one where the disease was prevailing, but often did the reverse.

The systemic symptoms of the disease he attributed to the great loss of water from the blood, thus altering the composition and function of the blood. He considered that the poison or poison-producing substance was accidentally swallowed and then acted as an irritant to the surface of the stomach and intestines. This caused a withdrawal of fluid from the blood.

He recognized the possibilities of infection resulting from unsanitary living and working conditions, carelessness in handling patients, and from food, as well as from water. He was able to cite numerous cases in support of this belief.

The most terrible outbreak of cholera he studied occurred in the vicinity of Broad Street and Golden Square in London. There were over five hundred persons in ten days and probably more would have died had not the population taken flight. By careful gathering of statistics and careful study he was able to trace the source of infection to the Broad Street well. The well was only thirty feet deep and within a few yards of the sewer which was twenty-two feet deep. The soil being of a gravel and clay nature, he concluded that the well had been contaminated by the seepage of the sewage. The water had a foul odor and taste and a film formed on the surface after it was kept a few hours. This was the well in which the pump-handle was removed, after which immediate improvement was apparent.

By taking statistics of deaths from cholera in relation to water supplied by different companies, he was able to show that there were more deaths per 100,000 population in those supplied by impure water. As the various water companies supplied rich and poor in different sections of the city and even on the same street, the possibility of selective error was eliminated. He was also able to show a decline in the incidence of cholera as the water supply was purified.

When cholera returned to London in 1854 Dr. Snow determined to ascertain the exact effect of the water supply on the progress of the epidemic. He wanted to satisfy his own mind and establish for all time the truth or fallacy of his theory. In going about his work, he again gathered and studied statistics on water supply and deaths. He learned that deaths were more prevalent in those houses supplied by the Southwark & Wauxhall Company, than in those supplied by the Lambert Company, although the houses were in the same district and often on the same street, the ratio of the deaths for the two companies being one to fifteen. The Southwark & Wauxhall Company obtained water from the Thames River in which the sewage was disposed, while the Lambert Company had a raw water supply free from sewage. This evidence seemed sufficient to involve definitely the water supply, but he did not make any definite conclusions. Instead he studied conditions in other English towns, also in Paris and Moscow. With each study he was able to show that the prevalence of the disease was connected with contaminated water supplies.

In studying the statistics he noticed that about 27 per cent of the deaths were in children under fifteen years of age. He concluded that this high proportion was due to the fact that children are very fond of water, especially in the warmer seasons.

With the completion of his study Dr. Snow was so convinced of the truthfulness of his theory that he formulated the following rules for the prevention of cholera:

1. Strictest cleanliness should be observed by all who contact the sick.
2. Careful handling and cleaning of soiled bed linen.
3. Care taken that water for internal use does not become contaminated.
4. When disease breaks out all provisions should be thoroughly cleansed.
5. Isolation of sick patients.
6. More sanitary conditions in coal mines.
7. Educate the public as to the communicability of cholera.
8. Effect food and proper drainage.
9. Free water of contamination.
10. Better living condition for the poor.
11. Educate public to practice personal and domestic cleanliness.
12. Segregation of sick people who arrive in ships.

He said "I feel confident that by attending to the above mentioned precautions, which I consider to be based on a correct knowledge of cholera, this disease may be rendered extremely rare, if indeed it may not be altogether banished from civilized countries."

After nearly one hundred years we are living in a civilization that experiences the fulfilment of this prophesy.

Public Health Statistics

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The report of the Bureau of Communicable Diseases of the State Department of Health for August, 1939, compared with the same month in 1938, follows:

	1939	*1938*
Typhoid and paratyphoid fever	94	76
Diphtheria	83	96
Scarlet fever	50	34
Measles	80	108
Meningitis	1	2
Poliomyelitis	6	12
Rocky Mountain spotted fever	9	11
Typhus fever	1	1
Undulant fever	1	6
Tularemia	5	6

PRELIMINARY REVIEW OF VITAL STATISTICS IN VIRGINIA FOR 1938

Total number of births in Virginia in 1938 shows an increase for the second consecutive year. The number recorded for 1938 is 53,380, with a rate of 21.6 per 1,000 population, in comparison with 51,-791 (rate 21.0) for 1937. White births in 1938 totaled 38,343 (21.1); colored totaled 15,037 (rate 22.9). Deaths decreased from 31,092 in 1937 to 29,560 in 1938. The total death rate was 12.0 per 1,000, with a rate of 10.6 for whites, 15.7 for colored.

Infant mortality for the year, 66.1 infant deaths per 1,000 live births, was lower than that of 69.8 in 1937. Maternal mortality, too, shows a slight decrease from previous years. The death rate from puerperal causes in 1938 was 5.3 per 1,000 live births, due to a total of 283 deaths, while rates in 1937 and 1936 were 5.6 and 5.8, respectively.

Inspection of the figures under the various causes of death shows rates for poliomyelitis (0.4) and epidemic meningitis (1.9) per 100,000 population to be the lowest for those causes since 1934. The rate for typhoid fever (2.3) was the same as in 1937, the lowest ever recorded in Virginia for that disease. The 1938 rates for measles (4.2), diphtheria (4.9), whooping cough (8.4), and diarrhea and dysentery under two years (21.0), however, were all slightly higher than in 1937.

The seven leading causes of death in 1938 are the same as in previous years, although the order is somewhat changed. Deaths from diseases of the heart are still in the lead (rate 259.8 per 100,000 population) with cerebral hemorrhage (108.2) following. The most striking decrease is noted in deaths from pneumonia. This cause dropped from third place in 1937 to fifth in 1938, with a decrease of 513 deaths. Nephritis, although showing a slightly lower figure than in 1937, rose from fourth to third place. The accident death rate (82.0) was definitely lower than in 1937, dropping from fifth to sixth place in 1938. Reduction in automobile fatalities accounted for 148 of the 161 decrease in accidental deaths between 1937 and 1938. Cancer rose from sixth to fourth place in 1938. Tuberculosis (all forms), with a slightly higher rate of 73.2 in 1938 than the 71.3 in 1937, still holds seventh place. Deaths from the seven leading causes in 1938 are listed below, with rates per 100,000 population:

	No. Deaths	*Rate*
1. Diseases of the heart	6,419	259.8
2. Cerebral hemorrhage	2,673	108.2
3. Nephritis	2,349	95.1
4. Cancer	2,206	89.3
5. Pneumonia	2,109	85.4
6. Accidents, total	2,025	82.0
7. Tuberculosis (all forms)	1,809	73.2

New Members

New members of the Medical Society of Virginia, since the list published in the April 1939 issue of the MONTHLY, are:

Dr. Charles Varner Amole, Alexandria.
Dr. Erwin Saul Berlin, Crockett.
Dr. McLemore Birdsong, Charlottesville.
Dr. Kenneth Nathan Byrne, Lexington.
Dr. William Fitzgerald Cavedo, Richmond.
Dr. Fielding Jason Crigler, Charlottesville.
Dr. Joseph Dingus Culbertson, Coeburn.
Dr. William Frederic Delp, Pulaski.
Dr. John William Devine, Jr., Lynchburg.
Dr. Connelly Moore Dobson, Richmond.
Dr. Frank William Foote, Jr., New York, N. Y.
Dr. George Hartranft Haley Garrison, Virginia Beach.
Dr. Joseph Edward Gladstone, Exmore.
Dr. John Milton Gouldin, Tappahannock.
Dr. Hugh Griffin, Dante.
Dr. Willard Wilson Griggs, Norton.
Dr. David Lemuel Harrell, Jr., Petersburg.
Dr. David Orville Helms, Pocahontas.
Dr. Jesse Bruce Hopkins, Bridgewater.
Dr. Frederick Melville Horsley, Schuyler.
Dr. George Mahlon Hutto, Alexandria.
Dr. Frank Aloysius Kearney, Phoebus.
Dr. Vincent Edward Lascara, Norfolk.
Dr. Earle Bailey Morgan, Fincastle.

Dr. James Talton O'Neal, Amelia.
Dr. James Trabue Rountree, Woodstock.
Dr. William Elijah Tomlinson, Jr., Richmond.
Dr. Herman Luther Tutwiler, Patterson.
Dr. Matthew James Walter White, Luray.
Dr. Ayer Crouch Whitley, Palmyra.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.
President-Elect—MRS. HENRY A. LATANE, Alexandria.
Corresponding Secretary—MRS. PAUL PEARSON, Aylett.
Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

My Parting Message!

Our year's work is drawing to a close. When this message reaches you, one and all will be packed and headed for our Capital City to attend our State Convention. You have read the program on "our page" of the September issue I know, and aren't you thrilled to see the many interesting events that have been planned for us by our capable Richmond chairman. I want to thank her not only for this but all the many helpful things she has done.

I wish I might grasp each one of you by the hand, look in your face and thank you for the splendid help and hearty cooperation you have given me in carrying on our work, but since I can't do this I am sending you this parting message.

I feel that our work has gone forward in many ways; there is a better understanding of the purpose of our organization; and best of all, our doctors are awakening to what our Auxiliary means to them in many ways, perhaps none greater than in promoting health education through its rightful channel —the profession—and too in helping to restore the family physician to the place of esteem and honor which he once held, but in this rushing age with all its "isms" has been slipping.

Please, may I again take this opportunity to thank one and all from the bottom of my heart, the Board, Miss Edwards, our Advisory Council, every president, officer and member of our groups for the loyal support you have given me, for what progress we have made is due largely to your help and cooperation.

Now that I leave you and our President-elect takes office I beg for her the same interest and help you have given me, and earnestly pray Virginia may soon be a 100 per cent Auxiliary State.

Now meet us in Richmond
The date you well know
There will be fun, food and speeches
So get ready and GO!

Faithfully yours,
(MRS. HAWES) ELLIE COCKE CAMPBELL.

Truth About Medicine

In addition to the articles previously enumerated the following has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:
Parke, Davis & Co.
Ampoules Adrenalin in Oil, 1 cc.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Immune Globulin (Human).—Fresh, healthy, human placentas, finely ground, are extracted with saline solution and the globulins are obtained from the extract by precipitation with ammonium sulfate. After removal of the salt by dialysis and addition of 0.05 per cent of phenol, the globulin solution is sterilized by Berkefeld filtration. (For a statement of the actions, uses, and dosage see New and Nonofficial Remedies, 1939, p. 412). The product is marketed in packages of 2 cc. and 10 cc. rubber-stoppered vials. Lederle Laboratories, Pearl River, N. Y.

Tablets Ascorbic Acid—Lederle, 0.025 Gm.—Each tablet contains cevitamic acid—Lederle (ascorbic acid—Lederle) (New and Nonofficial Remedies, 1939, p. 415), 0.025 Gm. Lederle Laboratories, Inc., Pearl River, N. Y.

Estrone—Lilly.—A brand of estrone (theelin)—N.N.R. (New and Nonofficial Remedies, 1939, p. 345). It is marketed in the following forms: Amopules Estrone, 0.1 mg. in oil, 1 cc.; Ampoules Estrone, 0.2 mg. in oil, 1 cc.; Ampoules Estrone, 0.5 mg. in oil, 1 cc.; Ampoules Estrone, 1.0 mg. in oil, 1 cc.; and Vaginal Suppositories Estrone, 0.2 mg. Eli Lilly & Co., Indianapolis, Inc.

Estriol—Lilly.—A brand of estriol (theelol)—N.N.R. (New and Nonofficial Remedies, 1939, p. 347). It is marketed in the following dosage forms: Pulvules Estriol, 0.06 mg.; Pulvules Estriol, 0.12 mg.; Pulvules Estriol, 0.24 mg. Eli Lilly & Co., Indianapolis, Ind.

Refined and Concentrated Antipneumococcic Serum, Type I—Lederle (New and Nonofficial Remedies, 1939,

p. 406).—This product is also marketed in packages of one vial containing 20,000 units and one vial containing 50,000 units. Lederle Laboratories, Inc., Pearl River, N. Y.

Antipneumococcic Serum, Refined and Concentrated, Type II (New and Nonofficial Remedies, 1939, p. 407).—This product is also marketed in packages of one vial containing 20,000 units and one vial containing 50,000 units. Lederle Laboratories, Inc., Pearl River, N. Y.

Bivalent Antipneumococcic Serum, Refined and Concentrated (New and Nonofficial Remedies, 1939, p. 409).—This product is also marketed in packages of one vial containing 20,000 units and one vial containing 50,000 units. Lederle Laboratories, Pearl River, N. Y.

Antipneumococcus Serum, Types IV and VIII, Refined and Concentrated (New and Nonofficial Remedies, 1939, p. 411).—This product is also marketed in packages of one vial containing 50,000 units. Lederle Laboratories, Inc., Pearl River, N. Y.

Antipneumococcic Serum, Types V and VII, Refined and Concentrated (New and Nonofficial Remedies, 1939, p. 411).—This product is also marketed in packages of one vial containing 50,000 units. Lederle Laboratories, Inc., Pearl River, N. Y.

Tetanus Toxoid, Alum Precipitated (Refined)—Gilliland (New and Nonofficial Remedies, 1939, p. 436).—Marketed in packages of two 1 cc. and two 0.5 cc. vials each containing one immunization treatment and in packages of one 10 cc. vial and one 5 cc. vial each containing five immunization treatments. Gilliland Laboratories, Inc., Marietta, Pa.

Propaganda for Reform

The Loss of Vitamin C in Orange Juice on Standing.—In connection with the consideration of an accepted product known as V-C-B (*The Journal,* June 10, 1939, p. 2421) the Council on Foods found it necessary to evaluate evidence in support of the common assumption that orange juice may lose considerable vitamin C on standing in the refrigerator. The claim has been made that orange juice diluted with V-C-B solution retains its vitamin C concentration much better than orange juice diluted with water. In support of this contention the firm provided results of tests of the vitamin C content as determined by chemical titration of a number of solutions at different intervals of time. These experiments purported to show that fresh orange juice lost 23 per cent of its vitamin C potency on standing in the refrigerator for twenty-four hours and 34 per cent on standing at room temperature for the same length of time. Experiments performed at the Connecticut Agricultural Experiment Station at the request of the Council do not support this claim. These experiments show that fresh orange juice, under the conditions of the experiment, retained 97.6 per cent of its vitamin C activity after twenty-four hours in the refrigerator; that V-C-B solution diluted with an equal volume of water lost nearly all of its activity when standing at room temperature and lost considerable vitamin C potency on standing in the refrigerator. When mixed with an equal volume of orange juice, the mixture retained its activity fairly well. The results show conclusively that the only effect of fresh orange juice and V-C-B solution on each other is that the orange juice retards the loss of vitamin C in V-C-B. The Council concludes that fresh orange juice loses very little vitamin C potency on standing in the refrigerator, especially if protected from the air, whereas solutions prepared from crystalline ascorbic acid may lose considerable vitamin C potency under the same conditions. (*J. A. M. A.,* June 10, 1939, p. 2420).

Book Announcements

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Reynolds, S. R. M.—Physiology of the uterus.
Robinson, G. C.—The patient as a person.
Sakel, M.—Pharmacological shock treatment of schizophrenia.
Severinghaus, E. L.—Endocrine therapy in general practice.
Slonaker, J. R.—The effect of protein in the diet of rats.
Spaeth, E. B.—Principles and practice of ophthalmic surgery.
Walton, R. P.—Marihuana; America's new drug problem.
Wyatt & Fraser.—Effects of monotony in work.
Yearbook of the Eye, Ear, Nose and Throat.
Yearbook of Neurology, Psychiatry and Endocrinology.

Diseases of the Nose and Throat. By CHARLES J. IMPERATORI, M.D., F.A.C.S., Professor of Otolaryngology, New York Polyclinic Medical School and Hospital; Consulting Laryngologist to Nyack General Hospital and Harlem Hospital; Consulting Bronchoscopist to Manhattan Eye, Ear and Throat Hospital, Fifth Avenue and Flower Hospital, and Riker's Island Hospital, New York; etc. And HERMAN J. BURMAN, M.D., F.A.C.S., Adjunct Professor of Otolaryngology, New York Polyclinic Medical School and Hospital; Director of the Department of Otolaryngology, Harlem Hospital; Consulting Bronchoscopist to Broad Street Hospital and Pan American Clinics, New York. Second Edition Revised. Philadelphia. J. B. Lippincott Company. 1939. Octavo of xxi-725 pages. 480 Illustrations. Cloth. Price, $7.00.

In recent years there has been a noticeable increase in the number of textbooks published in the field of otolaryngology. Revised editions of the old line texts have appeared. In addition new names have appeared as authors of textbooks. Among them are to be included the authors of this book.

Theirs has been a real contribution in the field.

It can not be said that they have gone unappreciated. Already the demand for a second edition has arisen.

The plan of the book is orderly and logical. Each chapter begins with an outline of the subject discussed in it. Then the matter is presented in a terse, synoptic style which facilitates both the acquisition and the retention of the facts.

New chapters have been added by specialists in their respective fields on X-ray examination, radiotherapy and laboratory methods.

The book is written from a practical standpoint. In it are to be found procedures and helpful hints for treatment not available in any other text.

It should find a well deserved place in the library of the general practitioner interested in this field, and in that of the specialist.

EMANUEL U. WALLERSTEIN, M.D.

Otolaryngology in General Practice. By LYMAN G. RICHARDS, M.D., Fellow in Otology, Courses for Graduates, and Assistant in Surgery, Harvard Medical School; Associate Professor of Otolaryngology, Tufts Medical School, etc. With a Foreword by D. HAROLD WALKER, M.D., Professor Emeritus of Otology at Harvard Medical School; Past President of American Otological Society. New York. The Macmillan Company. 1939. Octavo of 352 pages. Illustrated. Cloth. Price, $6.00.

The purpose of this book is to aid the general practitioner in a better understanding of the commoner problems of otolaryngology met with in every day practice. The volume consists of 331 pages and 22 chapters which are rich in substance, and devoid of duplication and technical discussions. While the illustrations are not profuse and elaborate, they are concise and accurate. The typographical form is pleasing and the author's style lends itself to enjoyable reading.

The chapter on respiratory obstruction is particularly informative, not only to the general practitioner, but should be of much interest to the trained specialist as well.

The significance of hoarseness is well emphasized in chapter nineteen and this alone should do much to acquaint the general profession with the importance of recognizing early symptoms of laryngeal malignancy.

This is a valuable contribution for the busy practitioner.

E. TRIBLE GATEWOOD, M.D.

Operative Gynecology. By HARRY STURGEON CROSSEN, M.D., Professor Emeritus of Clinical Gynecology, Washington University School of Medicine; Gynecologist to the Barnes Hospital, St. Louis Maternity Hospital, and St. Luke's Hospital; Consulting Gynecologist to De Paul Hospital and to the Jewish Hospital. And ROBERT JAMES CROSSEN, M.D., Assistant Professor of Clinical Gynecology and Obstetrics, Washington University School of Medicine; Assistant Gynecologist and Obstetrician to the Barnes Hospital and the St. Louis Maternity Hospital; Gynecologist to St. Luke's Hospital and to De Paul Hospital. Fifth Edition. Entirely Revised and Reset. St. Louis. The C. V. Mosby Company. 1938. Octavo of xxxii-1076 pages. Twelve hundred sixty-four illustrations including three color plates. Cloth. Price $12.50.

During the seven years since the last edition there have been great changes in gynecologic practice. The authors, recognizing the strides in our knowledge of endocrinology and the application of short wave diathermy, have further limited their indications for radical pelvic surgery, particularly in the field of pelvic inflammatory disease. Radical operations in the female pelvis based on vague indications are strongly condemned. The authors point out definite indications for certain operations and show how the operative technic must be adapted to the pathology in each individual case. For example eighteen different operations for retrodisplacement of the uterus are described along with some fifty modifications of these operations. The illustrations are unexcelled by any book dealing with this subject.

One-fourth of the book is devoted to care of the patient, pre-operatively, post-operatively, and to auxiliary treatments. Much stress is placed upon the careful selection of the patient as a risk for the proposed operation. Again the authors emphasize the necessity of bringing the patient up to the highest point of well being and then adopting the operative procedure best suited to the particular risk. The means of attaining these objectives are set down in detail. The post-operative care is described with minute detail, providing the reader with a workable mass of information.

A chapter on anesthesia puts much stress on Novocaine infiltration and considerably extends the indications of this anesthetic agent. The new inhalation anesthetics are discussed and some reference is made to the pharmacologic action of these drugs. There is also a chapter on surgery of the gastrointestinal and urinary tract in so far as it relates to gynecology. This is rather extraneous and is about the same material that has been presented in previous editions.

WILLIAM BICKERS, M.D.

Virginia Medical Monthly

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AGNES V. EDWARDS, Richmond, *Business Manager*

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Editorial

Where Shall We Meet Next Year?

The West Virginia State Medical Association proposes a joint meeting with the Medical Society of Virginia next year at White Sulphur Springs. Our House of Delegates will probably have an opportunity in a few days to accept or decline the invitation. Their decision will rest on their conception of the fundamental purpose of a state medical society.

There are a number of reasons why such a proposal appears attractive. It is a new idea and new ideas are always at a premium. It is a flattering attention from a sister medical society, and the company would be agreeable. It offers an opportunity for our members to take a trip to a famous and delightful resort with all the high class accommodations the place has to offer. It is an opportunity to have a new kind of state society meeting, one in which our members will largely be excused from putting on the show. It is possible that it may actually increase the attendance of members, since the West Virginia society reports a 40 per cent increase since adopting this meeting place and their present type of program. It will, if suggested plans hold, offer an opportunity to hear a battery of some fifteen or more out of state speakers of distinction.

There are, on the other hand, legitimate reasons why such a proposal may not appeal to the members of our Society. Some may want, as in the past, a meeting of their own where the membership can express itself freely. Some will argue that the Tri-State offers an interstate gathering for those who like that kind of meeting, that the American Medical Association, the Southern, and other national and regional gatherings give abundant opportunity to hear the Big Shots, that only our component societies and the State Society offer full and free opportunity for local talent to appear and exchange ideas and information and opinions. Others may think of "The White" as inaccessible to a large fraction of our membership. Still others may regard its daily rate of $9.00 as in excess of their ability to pay. Others may think the expense to our Society (estimated at about $800.00) of bringing a group of out of town speakers together as being too much. To these latter arguments it can quickly be answered that cheaper rates are to be obtained in the village and that the commercial exhibitors can probably finance the Society's increased bill of expense.

While proponents and opponents are being heard from, there will doubtless be delegates who will ask whether the Society has ever met out of the State before, and the meeting in Washington in 1914 over which Stephen Harnsberger presided will be recalled. If it is asked what effect that meeting had on the attendance of members, it will be replied that 265 attended it, while 343 attended the Lynchburg meeting

in the previous year of 1913 and 601 the Richmond meeting in the following year of 1915. If it should be asked whether the Society has ever attempted to meet in any of the Virginia mountain resorts, the answer will be yes—ten times—but not once since 1897. These facts have varying interpretations and admit of diverse conclusions.

The place of meeting for the Society and the program for the meeting will always be subjects of serious consideration by those entrusted with the responsibilities of office. Some persons have contended that the location should always be central and that it should always be in one of the larger medical centers of the State, while others wish to rotate it through the various regional centers of the State. There are tenable arguments on both sides. Some wish a meeting largely given over to outside talent, others prefer a meeting built on local talent almost exclusively. The Program Committee has nothing to do with the place of meeting. It has responsibility enough in the type of meeting to be conducted. It tries to keep its ears to the ground to learn the desires of a majority of the Society. It has often introduced innovations believed to be in the interest of a better scientific meeting but in general its policies have been to stay in the middle of the stream and to date it believes it has touched the shores of neither Scylla nor Charybdis.

Happily there need be no serious outcome of a difference of opinion on this or on any other subject in an organization such as ours which is equipped for and accustomed to arriving at the will of the majority by the workings of a democratic system of representation.

The Marriage Protection Bill.

A premarital examination bill was unsuccessfully offered at the last session of the Virginia Assembly. It forbade the marriage of syphilitics, and was probably too drastic for Virginia consumption. The Committee on Syphilis Control of the Medical Society of Virginia is going to present to our House of Delegates in a few days a much milder bill. It requires as a preliminary to securing a marriage license the filing with the county clerk of a physician's statement that he has caused to be made as to the parties involved a standard serological test for syphilis, a statement of the results of the serological examination of the blood of both parties, and, in case of evidence pointing to syphilis in either party, a statement that he has explained to both parties the nature of the findings and their significance.

It will be seen at a glance that such a law is persuasive rather than coercive, educative rather than punitive. It does not do violence to personal liberty and it will probably go further in reducing the number of marriages involving syphilitics than would more radical measures. While it places upon the physician definite responsibilities it does not make either him or the laboratory the final arbiter of marriage.

Whatever fault may be found with the bill on study and discussion by larger groups and by the public, surely no fault can be found with the tone of the statement which accompanies the Committee's report to our House of Delegates. It seems to us to have the temper and breadth that should characterize the work of all those interested in a better social order.

Proceedings of Societies

The Southwestern Virginia Medical Society

Held its annual meeting in Roanoke, September 21, with the president, Dr. Harry W. Bachman, Bristol, presiding. There was an attendance of seventy-five physicians. The afternoon session was given over to a round table discussion of Hypertension, Nephritis and Congestive Heart Failure, with Dr. J. Edwin Wood, Jr., University, as the leader. At the banquet in the evening, Mr. Holman Willis, Roanoke, gave a humorous address on "Some Reminiscences". Following this, Dr. Arthur M. Shipley, Baltimore, Maryland, gave a surgical lecture.

At the business meeting, the following officers were elected: President, Dr. C. F. Manges, Blacksburg; vice-president, Dr. T. K. McKee, Saltville; and secretary-treasurer, Dr. James P. King (re-elected), Radford. The retiring president, Dr. Bachman, and Dr. J. G. Cox, Hillsville, were elected to the executive committee. Twenty-two new members were taken into the Society.

The Southside Virginia Medical Association

Held its regular quarterly session at the Piedmont Sanatorium, Burkeville, on September 12. The following program was presented: What Message Should the Specialist Carry to the General Practitioner in Regard to the Treatment of Arthritis by Dr. Thomas Wheeldon, Richmond; Allergic Dermatoses by Dr. W. T. Vaughan, Richmond; Penetrating Wounds of the Thorax by Dr. A. V. Crosby, Norfolk; Spontaneous Pneumothorax Simulating Acute Coronary Occlusion by Dr. J. M. Hutcheson, Richmond; and Epituberculosis by Dr. Arnold Strauss, Norfolk.

Dr. C. S. Dodd, Petersburg, is president of this Association, and Dr. R. L. Raiford, Franklin, secretary-treasurer.

The Rockbridge County Medical Society

Met in Lexington on August 29, with the president, Dr. Francis Lee Thurman, of Buena Vista, presiding. The guest speaker for this meeting was Dr. W. W. Waddell, Jr., of the University of Virginia, who gave a talk illustrated with lantern slides. Dr. E. P. Tompkins, Lexington, is secretary of this Society.

News Notes

Last Call for Richmond!

Programs for the Richmond meeting of the State Society were mailed two weeks ago and there is little else to say but that Richmond doctors are waiting expectantly for the arrival of friends from all parts of Virginia as well as from other states. Come—even if you cannot stay for the full time!

In addition to special dinner groups already announced, the following have arranged for a get-together:

The Virginia Obstetrical and Gynecological Society will meet for dinner in the Monroe Room of the John Marshall Hotel, at 7:00 p. m., Wednesday, October 4;

The Virginia Pediatric Society will have a luncheon meeting in Parlor C of the Hotel, at 1:30 p. m., Thursday, October 5, this to take the form of a round table discussion of the endocrines;

Women physicians of the Society are also arranging for a luncheon at Miller and Rhoads, at 1:15 p. m., Thursday, October 5.

These are subscription affairs and those who count on attending are asked to register promptly.

Several scientific and technical exhibits have been added to those listed on the program.

Married.

Dr. Jose D. Coll, Fajardo, P. R., and Miss Ethel Margaret Allen, Churchville, August 5. Dr. Coll is a graduate of the Medical College of Virginia, class of '39, and is now serving an internship at Grace Hospital, Richmond.

Dr. Herman W. Farber and Miss Henrietta Salsbury, both of Richmond, August 30. He graduated from the University of Pennsylvania, Department of Medicine, in 1934.

Dr. Philip Wood Oden, class of 1934, Medical College of Virginia, and Miss Martha Lorraine Sanders, Richmond, September 9. They will make their home in Richmond.

Roanoke Board of Health.

The City of Roanoke has recently created a Board of Health composed of five members, two physicians and three lay members. Dr. W. P. Jackson, was named chairman and Dr. E. G. Gill vice-chairman.

Dr. James T. Rountree

Announces the change of his address from Front Royal to the Cora Miller Hospital, Woodstock.

Dr. E. V. Richardson,

Formerly of Jewell Valley, is now located at Leona Mines, where he is chief physician for the Virginia Iron, Coal and Coke Company for the Monarch and Imperial Mines.

American Public Health Association.

The 68th annual meeting of this Association will be held in Pittsburgh, October 15-20, an attendance of 3,500 being expected. On the 15th, the Sixth Institute on Public Health Education will begin and continue through the 16th, at which time the International Society of Medical Health Officers, the American School Health Association, the Association

of Women in Public Health, and the National Organization for Public Health Nursing, will also meet. There will be six general sessions throughout the week. Among the subjects chosen for these are Medical Care, Cancer, Professional Education, and The American Way as Seen from Abroad. The ten sections of the Association have also arranged programs covering topics of interest to the members. A full program may be obtained from the Association at 50 West 50th Street, New York, N. Y.

The American Academy of Ophthalmology and Otolaryngology

Will hold its forty-fourth annual meeting in Chicago, October 8-13, at the Palmer House. They will present elaborate courses of instruction with more than 100 specialists as teachers—four afternoon programs of motion pictures and a scientific exhibit in addition to its formal scientific program. There will be one joint session at which Dr. George M. Coates, Philadelphia, will deliver his presidential address and Dr. Burt R. Shurly, Detroit, will be introduced as the Academy's guest of honor for the year.

Dr. C. L. Riley,

Who for the past two years has been with the State Department of Health in Manassas, has just located for general practice in Winchester. He is a graduate of the Medical College of Virginia, pharmacy class of 1930, and medical class of 1934, and was a member of the resident staff of the Hospital Division for three years, completing a residency in obstetrics in 1937.

Dr. Cuthbert Tunstall,

Charlottesville, was recently re-elected a member of the City Library Board for a term of five years.

The E. R. Squibb and Sons

Announce the establishment of a new laboratory for the study of filterable virus diseases at New Brunswick, N. J. This laboratory will operate as a unit of the Biological Division and will be headed by Dr. Raymond C. Parker, biologist of the Rockefeller Institute for Medical Research. The new virus laboratory is housed in a specially constructed building and is equipped for work with chick embryos and tissue culture. The actual working quarters consist of a large general laboratory with every facility for chemical and histological work, a general preparation room for washing, drying, packing, and storing the various materials, two special culture and operating rooms provided with filtered ventilation, a spacious incubator room, an animal preparation room, a bleeding room, and ample animal quarters. Visitors may observe every step of the work in progress without entering any of the various rooms of the culture suite.

Dr. Edith J. Lacy,

Class of '25, Medical College of Virginia, who is connected with the Suwarta Hospital at Dhulia, West Khandesh, India, under the Presbyterian Board of Missions, is on a year's furlough in this country and is at present in Louisa County, this State.

Dr. C. Bernard Pritchett,

After practicing for several years at Hampton, has returned to Danville and opened offices at 644 Main Street, where he will limit his work to dermatology and allergy.

Graduate Fortnight.

The New York Academy of Medicine will have its twelfth Graduate Fortnight from October 23 to November 3, inclusive, the subject to be discussed being "The Endocrine Glands and Their Disorders". There will be evening sessions, morning round table conferences, and exhibits at the Academy building, and hospital clinical programs at the various hospitals throughout the city. Registration is limited to the medical profession, the fee for non-members being $5.00. A complete program and registration blank will be mailed on request sent the Academy at 2 East 103rd Street, New York City.

Medical College of Virginia News.

Convocation exercises opening the one hundred second session of the college were held at the old First Baptist Church, September 18, at 11:30 A. M. The laying of the cornerstone of the new hospital also took place in conjunction with these exercises.

Colonel E. W. Clarke, acting commissioner of public works of the Public Works Administration made the principal address. Colonel Clarke was introduced by Honorable James H. Price, Governor of Virginia, who spoke briefly on the place of the college and the new hospital in service to the State. Mr. H. A. Wortham, Regional Director of the Public Works Administration, Atlanta, Georgia, made a brief talk, as did Mr. George E. Snider, president of the student body organization of the college. President Sanger presided at the exercises. Following the exercises at the church the cornerstone was laid with

appropriate ceremonies by the Lewis Ginter Lodge, No. 317, A. F. & A. M.

Dr. J. H. Scherer, assistant professor of medicine, attended the International Conference on Hematology at Madison, Wisconsin, September 4-5-6.

The Public Works Administration has approved a supplemental grant in the amount of $123,056.00 for hospital construction. The total cost of the building when completed will run over $2,000,000.00.

Dr. Sumter S. Arnim has been appointed assistant professor of operative dentistry in the dental school of the college.

Dr. David S. Garner, assistant superintendent of the hospital division, has resigned to accept the position of assistant medical director of the Shenandoah Life Insurance Company, Roanoke, Virginia.

Mr. Byron E. Leach has been appointed research assistant in the department of biochemistry. Mr. Leach received his master's degree from the Virginia Polytechnic Institute last June.

The Richmond Chapter of the American Red Cross has made a grant of $700.00 towards a weekly clinic for venereal disease control for a period of seven months.

News from University of Virginia, Department of Medicine.

Dr. H. B. Mulholland spoke before the last meeting of the Piedmont Medical Society, in Culpeper, on the subject of Rocky Mountain Spotted Fever. Dr. Samuel A. Vest, Associate Professor of Urology, spoke on the subject of The Clinical Use of Testosterone.

Dr. J. Edwin Wood spoke before the James River Medical Society at its meeting in Arvonia, on Hypertension. Dr. H. B. Mulholland read a paper on The Common Causes of Indigestion.

Dr. Oscar Swineford, Jr. addressed the Southside Community Hospital Staff in Farmville, recently. His subject was Hodgkin's Disease.

On August 29, Dr. W. W. Waddell addressed the Rockingham County Medical Society, meeting in Lexington, on the subject Vitamin K in the Newly Born.

News from Duke University.

Miss Margaret I. Pinkerton has been appointed Dean of the School of Nursing and commenced her duties about October 1. Miss Pinkerton was graduated from the University of Virginia School of Nursing in 1927 and received her Bachelor of Science degree in Nursing from Teachers College, Columbia University, in 1933. She has been Assistant Superintendent of Nurses at the Stuart Circle Hospital in Richmond; Assistant Superintendent of Nurses at the University of Virginia; Instructor in Nursing Arts at Washington University School of Nursing, St. Louis; and Superintendent of Nurses at the Barnes Hospital, St. Louis, since 1938.

Of the 316 graduates of the Duke University School of Medicine, from the first class of 1932 through 1939, 204 are still engaged in interneships at various hospitals, and 112 are in practice. Of the latter, thirty-four or 30 per cent are in practice in twenty-six towns in North Carolina, and thirty-six are in practice in eleven other southern states, making a total of seventy or 62 per cent in practice in the South. Seven Duke graduates are in practice in West Virginia, six in Virginia, five each in South Carolina and Florida, three each in Alabama and Texas, two each in Georgia and Louisiana, and one each in Mississippi, Maryland and Kentucky.

Dr. Charles W. Warren,

Class of '36, Medical College of Virginia, who has recently been at the U. S. Marine Hospital in Baltimore, has resumed his practice in Upperville and will also be affiliated with the Middleburg Health Center.

Correction.

In the program of the annual meeting of the Medical Society of Virginia, in the September MONTHLY, it was stated that Dr. Eugene M. Landis, one of the speakers at the first general session on Wednesday, the 4th, was Dean of the Department of Medicine at the University of Virginia. This was an error as Dr. Harvey E. Jordan was several months ago named dean of the Medical School at the University, succeeding Dr. J. C. Flippin. Dr. Landis' title should have been Professor of Internal Medicine.

Personnel Notes from State Health Department.

Dr. P. R. Cronlund, formerly assistant health officer in Pulaski County, has been appointed to succeed Dr. James R. Suter as director of the Lee County Health Department, the headquarters of which are in Jonesville. Dr. Suter will attend the

School of Hygiene and Public Health at Johns Hopkins University during the current academic year.

Dr. E. C. Gates, who has been health officer for the Washington-Bristol Health Department, with offices at Bristol, also will take the course in public health at Johns Hopkins this year. He has been succeeded by Dr. W. M. Moir.

Dr. M. E. McRae, formerly assistant health officer in the Brunswick-Greensville-Mecklenburg Health Deparment, has been appointed health officer of the Pittsylvania County Health Department. He succeeds Dr. E. B. Shepherd, who has resigned to enter private practice. Headquarters for this department are in Chatham.

Dr. T. S. Englar has assumed the duties of health officer of the Albemarle-Charlottesville Health Department, offices of which are in Charlottesville. Dr. R. D. Hollowell, the former health officer, has resigned to accept the position as director of the Shelby County health department in his native state of Tennessee.

Dr. J. D. Hamner, for some time Henrico County health officer, is another of the doctors who has been designated by the State Health Department to take a postgraduate course in public health at Johns Hopkins University, and began his studies on September 20.

Dr. Edwin A. Harper,

Lynchburg, announces the removal of his office on September 1 to 301 Rivermont Avenue, that city. Dr. Harper was recently certified in Pediatrics by the American Board of Pediatrics.

Dr. Hugh B. Magill, Jr.,

Recently of Tappahannock, is now located at Gastonia, N. C., where he is engaged in general practice.

Dr. Robley D. Bates, Jr.,

Class of '34, Medical College of Virginia, who interned at Johnston-Willis Hospital, Richmond, and later was on service at the Hospital for Women and the Union Memorial Hospital in Baltimore, has located in Richmond, with offices in Professional Building. He will be engaged in the practice of internal medicine.

Dr. Louise Leland Clark,

Class of '37, Medical College of Virginia, has located in Chester, where she will be engaged in general practice. After an internship at Memorial Hospital, Richmond, Dr. Leland spent a year at the University of Maryland Hospital, serving a residency in pediatrics.

Dr. William D. Tillson,

Who has been director of the Bureau of Industrial Hygiene of the Virginia State Health Department since its creation in July 1936, has resigned this position to become medical director of the American Viscose Corporation at Parkersburg, W. Va., and will enter upon his new duties on November 1.

Postgraduate Clinic at University of Virginia.

The sixth postgraduate clinic will be held at the University Hospital, Charlottesville, December 5, 6, 7 and 8. The first two days will be limited to ophthalmology and the last two to otolaryngology. The program has not yet been completed.

Red Cross Cooperation With Medical Profession.

Red Cross first aid instruction has been going on since 1909. One of the points that is repeatedly emphasized in all classes, and more than 2,000,000 persons have been taught, is that first aid treatment is never designed to take the place of professional medical assistance. Its purpose merely is to bridge the gap between the time accident occurs and the arrival of a doctor or ambulance.

In recent years the Red Cross has established a chain of highway emergency first aid stations, operated by trained volunteers. Time and again these people, through their efforts, have been able to save life. At Red Cross National Headquarters are many reports testifying to their excellent work. One such first aid station, during a recent year turned in fifty-three reports of assistance rendered. These covered thirty-six motor vehicle accidents, nineteen serious cuts and injuries to neighbors, from dog and snake bites, two pedestrians struck by hit and run drivers, one shot-gun wound, and one injury sustained by a child when a washing machine fell on him.

All Red Cross services are finanaced by membership. Only in times of great disaster are special contributions and gifts solicited. This year it is planned to augment membership by 1,000,000. The medical profession of Virginia will again be called upon to cooperate with the Red Cross during the forthcoming

Roll Call, which begins November 11 and ends November 30, when all are invited to affiliate with their local Red Cross chapters.

Richmond Doctors Move.

The following Richmond doctors announce the removal of their offices:

Dr. Carl Meador to 201 North Boulevard.

Dr. Basil B. Jones to 1004 West Franklin Street.

Dr. Algie S. Hurt, Jr., to 1004 West Franklin Street.

Dr. R. Angus Nichols, Jr., to 1004 West Franklin Street.

Dr. Homer E. Ferguson to 923 West Franklin Street.

Dr. W. R. Morton to 923 West Franklin Street.

Dr. T. B. Pearman to 923 West Franklin Street.

Dr. Bruce Randolph to 923 West Franklin Street.

Dr. J. A. Rollings to 923 West Franklin Street.

Dr. George Snead to 923 West Franklin Street.

Dr. T. B. Washington to 923 West Franklin Street.

Dr. W. E. Jennings,

Danville, returned to his office on September 15, after an absence of nearly three months, due to illness and a major operation. He has recovered sufficiently to take over his practice.

Home for Convalescences.

A home for the care and treatment of chronic convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

Obituary Record

Dr. Walter Jones Adams,

Prominent physician of Norfolk, where he practiced for forty years, died September 16, following an operation. He was seventy-four years of age and a graduate of the Medical College of Virginia in 1895. Dr. Adams served as acting assistant surgeon in the U. S. Public Health Service before he began private practice. He had been a member of the Medical Society of Virginia for forty-two years. One of his sons is Dr. Walter P. Adams of Norfolk.

Dr. James Edward Rudasill,

Hume, died August 2 of heart disease. He was sixty-seven years of age and a graduate in medicine from the University of Pennsylvania, class of 1893. Dr. Rudasill was active in the social and religious life of his community, serving as Superintendent of the Baptist Church Sunday School. He had been a member of the Medical Society of Virginia for thirty years. Two brothers and three sisters survive him.

Dr. John Lewis Rawls,

Well known physician of Suffolk, was killed instantly in an automobile accident on September 5. He was fifty-three years of age and a graduate of the Jefferson Medical College, Philadelphia, in 1917. Dr. Rawls was a member of the staff of Lakeview Hospital and had been prominent in tuberculosis work in the State. He was a former president of the Suffolk Rotary Club and had been a member of the Medical Society of Virginia since 1923. His wife and two children survive him.

Dr. John McKendree Bailey,

Past president of the Hopewell Medical Association, died at his home there on September 22. He was a native of Westmoreland County, this State, and thirty-nine years of age. Dr. Bailey graduated from the Medical College of Virginia in the class of '24, and later took postgraduate work at the University of Pennsylvania. He had been practicing in Hopewell for about twelve years. His mother and two sisters survive him.

Dr. Peter Prentiss Causey,

Courtland, died June 5, at the age of sixty-six. He received his medical degree from the University of Maryland in 1897. Dr. Causey was Health Officer for Southampton County, and had been a member of the Medical Society of Virginia since 1902.

Dr. Bittle Cornelius Keister,

Washington, D. C., died May 3. He was a native of Virginia and eighty-two years of age. Dr. Keister graduated from the College of Physicians and Surgeons, Baltimore, in 1882, and for a number of years practiced medicine in Virginia. He had been a member of the Medical Society of Virginia for fifty-four years.

Dr. Robert Herman Rowe,

Abingdon, died of angina pectoris on June 14. He was fifty-one years of age and graduated in medicine from the University of Louisville in 1912. Dr. Rowe was formerly a member of the Medical Society of Virginia.

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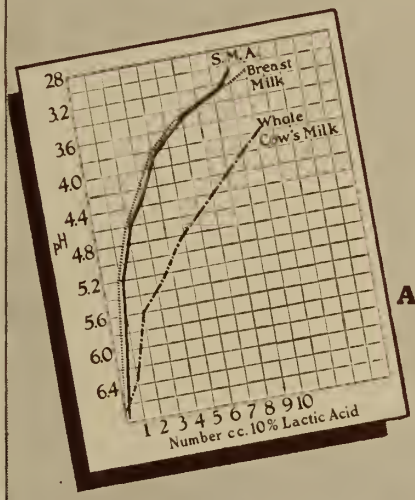

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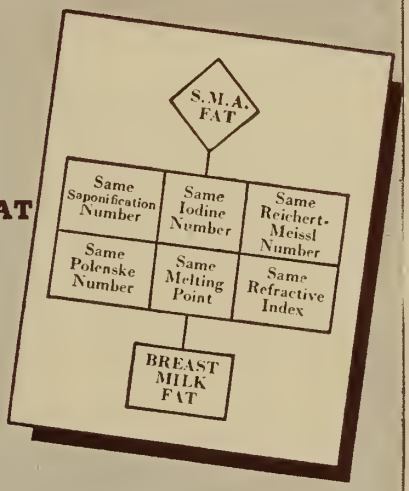

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*Frazer, J. G.: The Golden Bough, vol. I, New York, Macmillan & Co., 1923

It is ironical that the practice of attempting to cure rickets by holding the child in the cleft of an ash tree was associated with the rising of the sun, the light of which we now know is in itself one of Nature's specifics.

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CONTENTS

The Changing Era in Medical Economics. Alex. F. Robertson, Jr., M.D., F.A.C.P., Staunton, Va. 641
A Commentary Concerning Psychoanalysis. Lawrence F. Woolley, M.D., Townson, Md. 644
Is Virginia Doing Its Duty Toward the Advanced Case of Tuberculosis? C. Lydon Harrell, M.D., F.A.C.P., Norfolk, Va. 650
Kielland Forcepts. M. Pierce Rucker, M.D., Richmond, Va. 653
Sciatic Neuritis and Low Back Pain Caused by Rupture of the Intervertebral Discs. M. K. King, M.D., Norfolk, Va. 656
Arsenical Exfoliative Dermatitis with Tobacco Being the Probable Source of the Etiological Agent—Preliminary Report. E. E. Barksdale, M.D., Danville, Va. 660
Cancer of the Rectum. William L. Sibley, M.D., M.S. in Surgery, Roanoke, Va. 663
The Development of Helpful Mental Habits in Early Childhood. O. B. Darden, M.D., Richmond, Va. 666
What Message Should the Specialist Carry to the Family Physician in Regard to the Treatment of Arthritis. Thomas Wheeldon, M.D., Richmond, Va. 670
Trachoma and the Medical Inspection of Aliens. Theodore C. Merrill, M.D., Paris, France 674
A Luer Syringe Spring for Use in Venipuncture. K. D. Graves, M.D., Roanoke, Va. 678
PROCEEDINGS OF THE MEDICAL SOCIETY OF VIRGINIA 679
PUBLIC HEALTH STATISTICS 692
WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 693
TRUTH ABOUT MEDICINE 696
EDITORIAL 697
PROCEEDINGS OF SOCIETIES 700
NEWS NOTES 701
OBITUARY RECORD 706

INDEX TO ADVERTISERS—Advertising Page 6

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THE CHANGING ERA IN MEDICAL ECONOMICS.*

ALEX. F. ROBERTSON, JR., M.D., F.A.C.P.,
Staunton, Virginia.

MR. CHAIRMAN, FELLOW MEMBERS OF THE MEDICAL SOCIETY OF VIRGINIA, LADIES AND GENTLEMEN: As I complete my term of office as your president, I must again express to you my appreciation of the honor conferred upon me. To be elected president of one's state medical society is the highest honor which may come to a physician and one which I shall always cherish most highly. After this meeting I shall take up my proper place in the rear ranks, where, I trust, my devotion to the interests of our Society may continue to express my gratitude.

There are still some of us who are old fashioned enough to hark back to the constitution, and at this Seventieth Annual Convention of the Medical Society of Virginia, it does not seem amiss to read Article II of our constitution. "The purposes of this Society are: to promote the science and art of medicine; the protection of public health; and the betterment of the medical profession." These high purposes exist today even as they did seventy years ago, but their very existence is being threatened by the proposed socialization of medicine.

What do we mean by the socialization of medicine? The term is often used synonymously with the term "state medicine", and means the control and administration of medical services by the government—federal or state.

Socialized medicine, under the form of compulsory health insurance, was first introduced into Germany in 1883 by Bismarck, as a political measure. It was introduced into England in 1911 by Lloyd George, for political reasons. The same incentive has caused its adoption in many other countries and has earned for it the more descriptive term—political medicine.

The present unrest in this country began about ten years ago with the discussion of the lack of adequate medical care, and its prohibitive cost to those in the lower income brackets. It was held that, on the one hand, there were millions of people who were unable to pay for medical care, and that, on the other hand, there were thousands of physicians who were making only a bare subsistence from the practice of medicine.

This discussion led to the proposal by certain foundations, philanthropists, social service workers, and others, of a group system of federal medical care for the American people, based upon European systems of compulsory health insurance. This proposal has been vigorously opposed by organized medicine. By and large, the medical care received by the people of this country is superior to that received by the people of any other country. It has been shown conclusively, that in every country in which compulsory health insurance has been instituted, the quality of medical care has deteriorated, mortality has not been decreased, and morbidity has been markedly increased. Loss of morale on the part of the medical profession has resulted from lay control and political interference in the practice of medicine. The net result has been an inferior service with greatly increased cost of medical care, and resultant increased taxation.

While the quality of our medical service has been excellent, it has been freely admitted by the medical profession that the distribution of this service has been inadequate. Also the burden of cost upon low income classes has, in certain major illnesses, become intolerable. Various plans have been inaugurated by organized medicine to improve the distribution, and to spread the costs of medical care. These experiments, safeguarded by certain principles laid down by the American Medical Association, are still going forward. Results are being carefully analyzed. Certain plans are being discarded and others sub-

*Presidential address delivered at the seventieth annual session of the Medical Society of Virginia, at Richmond, October 3-5, 1939.

stituted, which are better suited to local conditions. Group hospitalization is becoming generally adopted and cash indemnity payments for long drawn out illnesses, upon the voluntary insurance principle, are coming into use.

While these evolutionary processes have been going forward, the drive by the foundations and others for the sudden and complete socialization of medicine has been gaining ground.

Added impetus was given this drive by the so-called revolt of the committee of 430 physicians against the A.M.A. in the fall of 1937, which made headline news, and was followed by many articles in lay magazines, attacking the stand-pat attitude of the A.M.A. It is an interesting fact that not one of these 430 physicians resigned from the A.M.A.'s roster of 110,000 members.

Parenthetically, there has been no real difference of objective in the medical profession. We are all agreed that there should be a better distribution of medical services to the indigent, and to those in the lower income groups; that our primary function is to furnish all the people with the best possible quality of medical care; that this care must be provided at a cost which everyone can meet; that we adhere to the principle of self-management, free from bureaucracy and political control—not from a spirit of self-interest, but as a safeguard against deterioration of the quality of medical service.

In the President's Social Security program, one of the objectives was security against illness, and in 1935 he appointed a technical committee to draw up recommendations for medical care. This committee read its report at the National Health Conference, called by the President, in Washington, in July, 1938. No representation was given the American Medical Association on this committee, nor was any advice asked in drafting the recommendations.

Just a few days after the National Health Conference, Assistant Attorney General, Thurmond Arnold, brought an indictment against the A.M.A. and the District of Columbia Medical Society for violation of the Sherman Antitrust Laws. This indictment resulted from the action of the District of Columbia Medical Society in not permitting its members to engage in the activities of the Group Health Association — a cooperative prepayment plan for medical care gotten up by Home Owners Loan Corporation employees, and characterized by many objectionable features disapproved by organized medicine. A number of commentators characterized this indictment as a political club held over the head of organized medicine to force it to endorse socialized medicine as outlined at the National Health Conference.

In September, 1938, at a special called meeting of the House of Delegates of the A.M.A., the report of the National Health Conference was considered and then recommendations were drawn up, which received the unanimous support of the medical profession.

Let us consider the recommendations of the National Health Conference and compare them with those of the A.M.A.:

RECOMMENDATION I of the National Health Conference advised the expansion of public health services and of maternal and child health services, including the eradication of tuberculosis, venereal diseases, and malaria; the control of pneumonia and cancer; mental and industrial hygiene; the medical and nursing care of mothers and infants, medical care of children, services for crippled children, etc. The A.M.A. recommended: 1. The establishment of a federal department of health with a secretary, who shall be a doctor of medicine and a member of the President's cabinet; 2. Favored the principles of expansion and desired to cooperate; 3. Advised against spending funds for the treatment of disease, except in so far as this could not be met by the general practitioner.

RECOMMENDATION II of the National Health Conference: Expansion of hospital facilities by the addition of 360,000 beds and 500 health and diagnostic centers.

The A.M.A. approved and stressed the use of existing hospital facilities and the stabilization of church and voluntary hospitals, by paying to them the costs of hospitalization of the medically indigent.

RECOMMENDATION III of the National Health Conference proposed medical care for the indigent and the medically needy through grants-in-aid to the states.

The A.M.A. advocated recognition of the principle that complete medical care of the indigent is a responsibility of the community and should be supported by tax funds, with state aid in poorer communities, and federal aid in poorer states.

The medical profession will welcome the appropriation of funds for the medically needy, provided, first, that the public welfare administrative proce-

dures are simplified and coordinated, and, second, that provision of medical service in arranged by responsible local officials, in cooperation with the local medical profession and allied groups.

RECOMMENDATION IV of the National Health Conference recommended a general program of Medical Care—specifically, a system of compulsory health insurance at an estimated cost of $2,600,000,000 annually. The A.M.A. approved the principle of hospital service insurance, now widely adopted, but these plans should not include any type of medical care.

Health needs are local problems and county or district medical societies, with the approval of the State Medical Society, should develop means to meet their local requirements.

The A.M.A. approved cash indemnity insurance for prolonged illness by those agencies approved by the county and state medical societies.

The A.M.A. was not willing to foster any system of compulsory health insurance, because it is a complicated bureaucratic system leading to a great increase in the cost of government, to political control and manipulation.

The A.M.A. recommended the expansion of workmen's compensation laws to provide for the costs of illness as a result of unemployment.

RECOMMENDATION V.—The last proposal of the National Health conference was Insurance against Loss of Wages During Sickness. The A.M.A. unreservedly endorsed this principle. It is, however, in the interest of good medical care that the attending physician be relieved of the duty of certification of illness and recovery, which should be the function of the qualified medical employee of the disbursing agency.

RECOMMENDATION VI of the A.M.A. was that a committee of not more than seven physicians, representative of the practicing profession, under the chairmanship of Dr. Abell, president of the A.M.A., be appointed to confer and consult with proper federal representatives relative to the proposed National Health Program.

It can be seen by this comparison, that the *objectives* of the National Health Program and of the A.M.A. were quite similar, but the method of approach was, in many instances, quite dissimilar. The matter of public health is certainly of sufficient importance to demand a secretary of public health, who must be a doctor, in the cabinet. Expansion of public health, or maternal and child welfare, should not include treatment of diseases, unless this cannot be done by the general practitioner.

In the expansion of hospitals, existing facilities, including laboratories (diagnostic centers), should be fully utilized. Government financed facilities should not compete with existing institutions.

In the provision of medical care for the indigent and medically needy, the system should be a local one to meet local needs, with financial aid from the state or federal government when necessary.

The suggestion of compulsory health insurance was vigorously opposed by the A.M.A., but hospital insurance, indemnity insurance against the costs of illness, and expansion of workmen's compensation, to include costs of illness resulting from employment, were endorsed.

On February 28, 1939, the Wagner Health Bill was introduced into Congress. This bill, as drawn, would translate into law the recommendations of the National Health Conference without any changes following the recommendations of the A.M.A. or of its special committee, which held conferences with the President's technical committee.

At its annual meeting in May, 1939, the A.M.A. unanimously adopted the report of its reference committee condemning the Wagner Health Bill. Organized medicine has approved many of the *objectives* of this bill, namely, the expansion of public health, subsidizing hospitals for the care of indigent patients, insurance against loss of wages through illness, etc., but has contended that the whole set-up should be based on local needs, with the adoption of local means to meet those needs.

Among the most serious objections to the Wagner Bill are: While disclaiming this objective, it nevertheless promotes a system of complete state medicine through the lure of grants-in-aid to all the states. While, theoretically, it is left to the several states to decide if they will adopt a system of health insurance, these states will be forced through general taxation to share the costs in other states, even though they do not need or desire such a scheme themselves.

The bill is set up to operate under three different heads—the Children's Bureau of the Department of Labor, the Public Health Service, and the Social Security Board. Each has duplicating advisory councils, overlapping functions, and control of not only the administration, but also of the training and standards of its personnel.

The Wagner Bill adds complete medical care to

the provision for compensation for loss of wages through illness, thereby inaugurating health insurance for all those already covered by workmen's compensation laws.

No provision is made for determining the necessity for medical care for which the money is to be spent, nor for the utilization of thousands of beds now vacant in church and other hospitals.

No method of raising the huge amounts of money that would be required are included in the bill—probably because, if the attention of the public was called to the sharp increase in taxes thus entailed, it would insure the defeat of the measure. Taxes, largely hidden, already consume twenty-five cents of each dollar. It is estimated that the passage of this bill would increase taxes 50 to 100 per cent.

The bill, if passed, would constitute a blank check signed by Congress, for it does not limit the amounts appropriated after 1942, nor does it limit a number of the titles after the first year.

No safeguard is given for the continued existence of private practitioners or voluntary hospitals.

This brings us back to our starting point—the purpose of our society. I think we are all agreed that we can continue to give the American people the best quality of medical service and retain our high ideals and progress only by maintaining our professional independence, and by not becoming paid employees of the federal government.

With the present demand for the socialization of medicine, how may this be accomplished? It seems to me that, as a group, we have failed to use a tremendous influence which we might exert upon public opinion. While the medical profession is being baited by certain columnists, foundations, and prophets of the new era, the 145,000 physicians in practice in this country have made little effort, as individuals, to defend themselves. If we bestir ourselves and acquaint our friends, lay groups, etc., with the evils of a system of federal medicine, I honestly believe the danger can be averted.

As a constructive effort, if each community will study its needs and take steps to meet them, the problem will be solved in the American way. The care of the indigent and medically needy by the local communities and the more general adoption of group hospital insurance will solve the major portion of our problem. This would enable the hospitals to lower their charges for those in the lower income groups, and to meet the greatest needs without changing the whole plan of medical service.

As a profession we are, and always have been, concerned with giving our patients the best medical care available, irrespective of their financial status. We are acutely aware of the changing social order and economic distress. Hundreds of plans are being tried out all over the country, and changes are being made with the preservation of our usefulness and independence. We ask the people of Virginia, and of the nation, to give us a chance to work this problem out on a logical evolutionary basis, rather than to force upon us a system, whose evils we know too well.

In conclusion, let us rededicate ourselves to the purposes of this society which are "to promote the science and art of medicine, the protection of public health, and the betterment of the medical profession."

A COMMENTARY CONCERNING PSYCHOANALYSIS.*

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In discussing psychoanalysis it would be unbecoming to attempt either a compilation of its achievements, which are many, or an analysis of its errors, some of which appear monumental. Both tasks have been executed by more competent authorities and with far more vigor and skill than the writer could muster. This paper will deal rather with some aspects of the effects of psychoanalysis upon the objective behavior of individuals subjected to it and will strive to point out some of the problems arising therefrom. These facts should be observable by anyone who has the desire to see and the capacity for dealing with the complexities of a total situation. Their presentation at this time is with a view to precipitating inquiry, rather than controversy.

The observations upon which this paper is based are derived from fifteen years of first-hand contact with psychiatric problems of every description. This

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has been illuminated by a fairly extensive sojourn along the highways and byways of psychiatric literature including much that is considered fundamental to psychoanalysis. There have been intimate acquaintanceships with a few analysts and casual contact with a fair number of them, including seven years of observation of their methods, their work, and its results in a responsible supervisory situation. This has been supplemented by a rather thorough going autobiographical psychobiological survey which was reviewed and expanded following about five hundred hours of self-analysis by means of free association techniques applied to dreams and symptomatic acts.

What emerges as essential is the need for evaluation of psychoanalysis and an incorporation into our general psychiatric knowledge and practice of all those factors which give promise of utility.

In this process one should keep in mind that our scientific laws, theories, hypotheses and formulations, as well as our techniques and procedures are tools which man has created for his own use. They should be treated as what they are, our servants, not our masters. The danger lurking in special schools of science is that the devotee becomes too often enslaved to ritualistic ideas and practices which deprive him of liberty of thought and action and the right to use whatever sound judgment and good sense he had to start with.

Psychobiology should escape this difficulty because it simply defines the category of phenomena to be studied, namely, the activities, both overt and implicit, of individuals reacting to total settings. This leaves the student free to pick and choose what seem to him to be appropriate methods of investigation or treatment in any instance. It aims only to apply the same criteria of validity to fact or theory which are required by other scientific disciplines. Demonstrably valid data and formulations emerging from whatever source are psychobiological material, even if, at times, unrecognized as such. On this basis psychobiology will not be permitted to quarrel with any valid data or conclusions emerging from psychoanalytic sources. To them we are indebted for a remarkable stimulus toward investigation and sound contributions concerning fundamentally significant topics. The rigidity of earlier formulations has been modified and some of the errors have been and are being eliminated by the influx of young men of sufficiently independent attitude to escape enslavement and there are indications of a shift from too limited a view to one with wider grasp of total situations.

Recently Fromm-Reichmann presented a paper on the transference difficulties arising in the treatment of schizophrenia, no point of which was obscured by psychoanalytic mysticism and no point of which could be objected to by any competent psychiatrist, whatever his allegiance. Karen Horney, in her book "New Ways in Psychoanalysis," throws overboard many of its distinguishing features and returns to sounder and more generally acceptable foundations. In such instances psychoanalysis loses its identity and becomes an integral part of general psychiatry.

Psychiatry which originally scoffed (and perhaps with some justice) at the earlier psychoanalytic doctrines, has gradually become infiltrated with psychoanalytic thinking, theory and terms to such an extent that the wide gulf originally separating the two has gradually narrowed to a mere cleft, sustained mainly by a difference of language, across which we can frequently communicate with some ease and understanding of each other. In 1933 the legitimacy of the offspring was officially recognized by the organization of a Psychoanalytic Section in the American Psychiatric Association. Both groups appear to be approaching the same ultimate goal by different routes and it may be anticipated that the existing differences will be overcome so that the resources of both can be pooled to their mutual benefit.

With the attenuation of the stress resulting from differences of theoretical formulations, we should see a diminution in the intolerant attitudes which lead the analysts to see no virtue in anything else and psychiatry to find no good coming out of Nazareth. Extravagant claims and the seeking for undue credit should subside and all should recognize that all have contributed generously to the advances made. If we can thus dispose of unessential issues, we may be able to devote attention to more worthy topics.

In the clinical attitude that governs a treatment unit such as the Sheppard and Enoch Pratt Hospital we find it undesirable to permit any one school of thought to dominate since it is desirable that as many viewpoints as possible should live in amicable relationship. All of these, however, should be permeated by certain basic attitudes without which, in our opinion, sound psychiatric practice cannot be carried out. Most important among these are kindness, a willingness to abandon textbook formulae in favor

of utilizing the facts of the case as it presents itself, a sincere liking for people including their frailities, and more concern with what things mean to the patient than with what they mean to the physician. All of these must be regulated by a due consideration for the realities of a total situation including our obligations to the patient and his future, his family, and the social body at large. These principles are not the exclusive children of psychoanalysts or any other group. They emanate rather from the type of person who should be trained for psychiatric practice than from any particular school he may pursue.

Our familiarity with psychoanalytic treatment as such is psychoanalytic treatment as practiced at the Sheppard and Enoch Pratt Hospital. Here the patients do not usually fall into the diagnostic categories most adaptable to treatment by the method. The psychoneurotics that we do see are severely ill ones who often have been subjected to much treatment elsewhere. It frequently appears to us that the psychoanalytic method is more helpful as a research instrument than as a therapeutic agent in such circumstances. Therefore, in this institution psychoanalysis is considered as a therapeutic instrument to be used in conjunction with all the other therapeutic adjuncts of a large and very well-equipped institution. Patients coming here, whether to be analyzed or not, are exposed to a battery of therapeutic agents including hydrotherapeutics, occupational therapy, recreational therapy, physiotherapy, and medical therapy wherever these are indicated. In addition, and what seems much more important, the patient is placed in an environment that we strive to make as permissive as his needs require. He comes into contact at one time or another with all the physicians of the staff, with many of our well trained nursing and occupational personnel, and with other patients who are under similar and other forms of psychotherapy.

Hence, it comes about that whatever special form of treatment he is undergoing, he is exposed to all the varied points of view, to a wide range of distorted as well as normal behavior, and to a variety of philosophies and attitudes to which he must react. Such an experience makes for a tremendous impetus toward personality development and growth, and the individual has the opportunity to extract from this all that may be useful to him. In such circumstances it would seem folly to attribute to any one special procedure the essential role in what eventuates.

In the past seven years, psychoanalysis has been applied in less than 4 per cent of our admissions. Are we to assume that the 96 per cent unanalyzed were deprived of an opportunity for growth? Facts do not bear out such an assumption.

A psychoanalyst formerly on our staff has recently reported on the results of his seven years of psychoanalytic work with us. Avoiding statistical details, it should be noted that over the same period of time an almost parallel series of one and two-thirds as many patients were treated by another physician using general psychotherapeutic methods, with the expenditure of less than one-third of the number of psychotherapeutic hours. The net result was that the latter series exceeded slightly in per cent, and greatly in the number, of clinical recoveries obtained. In fact, the number of patients from the latter group who are functioning at work or school equals the entire group treated by the analyst, and 40 per cent of them show better adjustment than before they were ill.

Anyone reading the above figures might make the error of assuming that they are intended to discredit the psychoanalytic procedure. The fact that psychoanalysis when used was selected deliberately and with due consideration for the total situation should guard against such error. The figures are only given to point the argument that psychoanalysis by no means holds the only key to recovery and personality development and analysts should not be blind to this.

Interestingly enough there happened to be overlapping of five cases. Three had been analyzed before being subjected to other therapy and two were psychoanalyzed both before and after. Of these, one who had exhibited a severe obsessional illness for a period of six years and had been psychoanalyzed for many months without apparent change in his characteristic preoccupations, made a complete recovery after approximately 100 hours of interviews which were aimed at a practical re-socialization of his interests, has maintained this recovery over a period of three years, and is now working at a much higher level than ever before. One of the previously analyzed patients, a schizophrenic woman of thirty-eight, ill for a period of twelve years, and exposed to psychoanalysis for nine months of her hospital stay without being able to advance materially her status within the institution, made a sufficient degree

of improvement on a similar socializing program to enable her to attain discharge from the hospital and maintain herself for a period of over six years at a higher level of social adjustment than might have been anticipated. While not symptom-free, she is capable of managing herself, an adopted child, and a fairly large income without social disaster. One of the previously analyzed cases died in the hospital of pyemia.

Of the patients who were analyzed both before and after other therapy, one is much improved but was unable to continue in an attempt at employment; the other deserves more lengthy comment.

This girl of eighteen had suffered for approximately seven years with a convulsive disorder, for which she had been treated in many clinics and in many ways, at the cost of a tremendous financial outlay by her parents. As a last resort, she was brought to this hospital and remained under our direction and treatment for a period of five years. Considered to be suffering from hysteria, since the seizures which could be observed were demonstrably functional in nature, she was at first treated for this condition. A shower of seizures amounting to *status epilepticus* and showing focalization of discharge area through a Jacksonian pattern, beginning in the left orbital region and spreading over her body, led to encephalographic studies which revealed a defect of the right hemisphere, probably congenital in origin.

During a portion of her hospital stay she was treated analytically by another physician who died during the course of treatment. Following this she was treated psychotherapeutically for a total of approximately sixty hours over a period of five months by the non-analytic therapist. Because of the slight amount of progress made, and the analyst's interest in this patient, she was turned over to him for further therapy which was continued for 900 hours, or something over three and one-half years.

During this period of time the girl grew from a relatively undeveloped late adolescent of eighteen into a fairly well developed young woman of twenty-three. Actual improvement in her symptomatic status could be correlated definitely with certain other therapeutic procedures that were instituted: 1. Throughout her stay in the hospital she was given luminal. Her optimal dosage appeared to be about one and one-half grains per day. Smaller doses than this would result in an increased number of seizures, as would larger doses. 2. She was found to be allergic to cat hair, and on one occasion succeeded in bringing on a series of convulsive episodes by harboring a cat in her room. Removal from this irritant terminated the shower. Of course, we are not blind to the possible symbolic significance of the cat. 3. She was found to have more seizures in the early morning hours than at any other time. Her fasting blood sugar level was normal, but her sugar tolerance curve showed slight abnormality of characteristic type. Waking her at 4:30 in the morning and administering a glass of orange juice resulted in marked diminution of these early morning seizures. 4. Her menstrual periods had been irregular; her sexual organs were under-developed and the secondary sexual characteristics did not conform to her age. Showers of seizures occurred with each menstrual period until she was given a series of theolol treatments over a period of nine months, which resulted in considerable development of the secondary characteristics, regulation of the menstrual cycle and marked diminution in the intra-menstrual number of seizures. 5. In the two years she has been discharged from the hospital she has continued to have seizures. Some of these she has used in a typically hysterical fashion, and some apparently have been organically determined. Dilantin has been introduced into her regimen, and it is reported that she shows more improvement than before it was started.

With the time factor and the factors of endocrine and medical therapeutics all making for personality growth and development, together with five years of contact with a highly permissive environment and an intimate, friendly relationship with several people of superior personality qualifications (such as those exhibited by her analyst), it seems unsafe to ascribe her growth to the analytic procedure *per se*. Yet the analyst rates her third as to psychoanalytic growth in his entire series and considers psychoanalysis as essential to her development.

If the analyst is not to be permitted to claim credit for the progress in such instances, there is still much he can claim credit for. The psychoanalytic viewpoint permits an insight into certain aspects of causation of human behavior that is rarely found in people other than analysts. Whether or not it is desirable to change these personality foundations in a given instance it is always necessary to know what they are in order to make the decision. With those cases wherein these factors are of primary impor-

tance, it is often best to entrust the task to one who has been analytically trained. While such changes can be brought about otherwise, very few psychiatrists who know nothing of psychoanalysis are competent to handle them successfully. Many difficulties are to be encountered and should be foreseen if progress is to be made and harm avoided.

When a patient is undergoing psychoanalysis he is brought face to face with memories and experiences so terrifying to him that he has avoided them for years at considerable sacrifice. As analysis progresses there come crises of fear or depression or anti- or asocial behavior. If the analyst is competent, these more often foreshadow progress than regression. At times these crises may result in termination of the analysis and then the patient may gradually settle down or even get worse. More often they can be worked through successfully if properly handled and then the patient suddenly emerges at a considerably improved level. Hence, it is unwise to judge analytic and therapeutic progress by the overt behavior of the patient during treatment. Some competent analysts, however, are unwilling to consider psychoanalysis as primarily an instrument for therapy, considering it more useful as a research method, particularly in dealing with patients as sick as ours.

General Comment

All though we find psychoanalysis a useful adjunct, certain considerations make us more reluctant to employ it than we otherwise would be.

A large number of psychoanalyzed patients make progress to the level of a moderately comfortable existence within the hospital, but the psychoanalyst, in many instances, is unable to furnish the final impetus that would enable the patient to assume an independent existence outside. With other patients he may be unwilling to admit failure after months, or even years, of treatment without observable progress. When these situations arise and it is pointed out that the therapy seems to be taking an undue length of time, the analyst replies that the patient is "Just working through something," and requests a longer period. If the issue is brought up again in three months, six months, or a year, the response is very apt to be the same.

Then, too, the analyst is prone to ignore any but the most striking medical indications and results, so that obscure conditions may be unrecognized; or, if treated adequately, he is as likely to ascribe the result to analysis as to logical medical procedures.

Also the analyst tends to identify himself too closely with the patient, seeing things only from the patient's point of view, and, therefore, ignoring the necessities of an obvious external reality that places requirements upon the patient no less than upon himself, and the rest of us. Issues that arise on this foundation are necessarily settled against the wishes of the analytic therapist and leave him feeling frustrated and handicapped. If analysts could accept these frustrations with better grace and show an awareness of what it was all about, we would feel much more secure in turning patients over to them, in less well supervised situations than obtain with us.

In addition to these factors making for restricted use of the psychoanalytic method, there are other important considerations before the patient can be accepted for such therapy.

1. Because of the long duration of the psychoanalytic procedure, there should be reasonable assurance of the ability of the patient and the analyst and the institution to tolerate treatment lasting anywhere from many months to several years. This raises, of course, a financial consideration of some importance.

2. The analyst should have a reasonable amount of interest in working with this particular patient or this type of individual, either from the standpoint of the expectation of therapeutic result or the unearthing of factors of research importance.

3. The patient should exhibit some interest in forming a deep inter-personal relationship with the analyst who is to undertake the work.

4. It should not appear to be likely that other less prolonged forms of therapy would result in adequate personality development and symptomatic improvement. If there is much doubt, the less expensive and less tedious procedures should be tried first.

5. The patient, if capable of it, should have a reasonable understanding of what he is to under-go in the analytic procedure and be willing to assume some responsibility for seeing it through. Such a rule cannot apply, of course, to the deeply psychotic individual.

It is quite impossible to close this paper without discussion of the effects of psychoanalysis upon physicians undergoing training.

The young psychiatrist contemplates analysis with awe and respect. He finds himself faced with cer-

tain people who are beset with problems and worries which, more often than not, he is quite unequipped to deal with. Whatever he has learned from books and lectures, whatever opportunities his clinical teaching has embraced, he too often lacks practical experience with life's problems and their solution in his own life. Too often, also, his own life philosophy has become insecure. Those ties to God and religion, which might have given him a sense of secure and fundamental knowledge, have become attenuated by prolonged contact with scientific skepticism. He has found the authorities frequently in error, yet he has no reason whatever to trust his own judgment and common sense, since they have not been tried. In the psychiatric clinic he finds experienced physicians who do good work with patients and who have laid aside and caution him against applying to the behavior of patients the moralistic dogmatism of "right and wrong". He knows that upon his management will depend the happiness of those he is called upon to guide. That he trembles at such responsibility is not to be wondered at.

A psychobiological approach calls for judgments at every turn. It offers no absolute guarantee of success or even that this or that technique is best. For such as would practice along these lines there is need for choice and selection and change of technique and pace at every turn. Such practice requires, moreover, a clear formulation of the problems the patient is really facing, of aiding him to make decisions as to their solution, of working with every resource of patient, family, and community in the process; and of building up anew on successive failures. It is often tedious and time-consuming, requiring tact, diplomacy and good sense. And, at the end, in case of failure, one has to lay it to his own limitations, even though the problem may be too difficult for anyone to solve with our present knowledge.

Under these circumstances, the inexperienced have a right to doubt their capacity. Out of this insecurity comes a longing for someone to tell them exactly what to do, and when and how to do it—a desire to learn one formula that will work with all—a key that will unlock all doors—a procedure so routinized and authoritative that its failures must be ascribed to the patient, not the doctor.

This is what psychoanalysis *seems* to promise them. In spite of rules of psychoanalytic societies, requiring a certain amount of general psychiatric experience before analysis, it appears to happen more often than not that the young psychiatrist starts his analytic training before he has any idea whatever of what can be done by ordinary techniques or his competence and skill with them. Once he has embarked upon his analytic course, it is usually already too late to ever learn anything else.

When the physician starts his analysis certain phenomena occur. From the first he tends to become impatient of objective and verifiable facts, being less concerned with the reality of the experiences encountered or their solutions as reality problems than with their interpretation in terms of psychoanalytic theory. This leads him into a forest of errors. Purely subjective experiences may be treated by him as objective realities and important objective realities may be ignored as only inconsequential proof of the particular theory at that time called upon to account for the patient's difficulties. The theory called upon varies with the stage of the physician's analysis and what he happens to be learning about himself at the time. Hence, for a while, every case will be seen in terms of the œdipus complex with mother or father fixation and castration fears and/or penis envy. A little later, every patient is seen as a repressed homosexual and then we have anal and oral fixations. Soon narcissism emerges and than the inability of the patient to tolerate loving or hating, sadistic or masochistic trends, etc., come to the fore. This recapitulation is so characteristic that one can often follow the psychoanalytic progress of the physician by the way he formulates his patients. Fortunately, it does not seem to be of essential importance that patients receive either a correct or a complete explanation of their symptoms, if they can tolerate and digest whatever explanation is forthcoming.

What is of considerably more importance from the standpoint of the physician is that after the analysis is over, he is usually uninterested in any problems which do not lend themselves to resolution by this technique. This renders him less useful than he should be and often restricts his efforts to work with a very few patients. In this respect almost every physician who has been analyzed, with whom I am acquainted intimately, has suffered to some extent.

Another noteworthy fact is that, as the analytic training proceeds, the formerly moderately happy and normal young man begins to show evidences of emotional stress. His brow becomes furrowed and he lapses into preoccupation. Sometimes he develops erratic behavior or oddities of conduct. Such changes

reflect the same kinds of emotional storms previously mentioned in connection with patients and have the same significance as to progress and danger. Occasionally they may become so severe as to interrupt the analysis or even his career. Sometimes the analysis can never finish. Sometimes the physician works through somehow to a happy ending, in which he is at least as well, and often enough even better, integrated than he was at the start. In some few instances, both the personality and the therapeutic usefulness of the physician have developed remarkably following the procedure, but it has not been evident that any other thorough-going study of the personality might not have been equally effective. One rarely sees adverse effects following mere objective studies. Because of this, it seems unwise to recommend training analysis to physicians specializing in psychiatry. Since there is no evidence that failure to be analyzed will prevent a happy, useful, and successful career, training analyses should be selected by those who are to undergo them without external pressure. Certainly those desiring to employ the method either for treatment or research should be properly trained.

In any event, it would seem that a better reality orientation might be preserved and the value of psychoanalytic training much enhanced if the physicians undertaking such training were required to make an objective psychobiological autobiographical review of his life both before and after. This would serve to crystallize in a rather objective way whatever progress had been made.

SUMMARY

Psychiatry's offspring—psychoanalysis—is gradually being assimilated into the family. The problems of its assimilation are those presented by any precocious youngster but already it has demonstrated capacity for enlarging our knowledge and has furnished us a new instrument of limited but definite value in treatment. We believe it to have a higher value as a research instrument than as a therapy. We are opposed to the urging of young physicians to undergo psychoanalysis but favor their undertaking it, if they so elect, after they have acquired more general knowledge and skill. We believe that psychiatry will be benefited and psychoanalysis become much more useful if the former can be more tolerant and the latter show better grasp of total situations.

IS VIRGINIA DOING ITS DUTY TOWARD THE ADVANCED CASE OF TUBERCULOSIS?

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It has been my opinion for many years that too much money is being spent and too much attention is being paid to the early case of tuberculosis in proportion to what is being done for the advanced case.

It is true the early, or minimal case, stands a far better chance of being cured and of returning to a position of earning a livelihood than the advanced case. On the other hand, the advanced, or the open case, is the source of your infection. It is from this type of case that the early cases get their infection. One case always comes from another. Is it not reasonable to assume that in the long run it will be more economical to attack or stop your source of infection by isolating the open cases (I refer to those with a positive sputum) rather than let them shift for themselves and continue to spread the disease?

There are in the State 770 beds for white and 266 for colored tuberculous patients, known as state beds. Of this number 280 beds are free to white patients and 130 for negro patients. There are 565 community, or municipal beds, of which 417 are for white and 148 for negro patients.

There were 1,809 deaths from tuberculosis in the State in 1938. Of this number 861 were white, with a rate of 47.5, while 948 were colored, with a death rate of 144.2.

TABLE 1
LIST OF STATE BEDS FOR TUBERCULOUS PATIENTS

	PAY	FREE	TOTAL	GRAND TOTAL
Catawba—White	240	160	400	White 770
Blue Ridge—White	250	120	370	
Piedmont—Negroes	136	130	266	266

The total available beds in the State for white patients is 1,237, colored 414 (not near that many last year). This gives about one and a half beds for each white death with approximately two and three-

TABLE 2

LIST OF COMMUNITY OR MUNICIPAL BEDS FOR TUBERCULOUS PATIENTS

	WHITE	COLORED	TOTAL	
Pine Camp—Richmond	214	72	270	Free to residents of City of Richmond.
Grandy—Norfolk	67	33	100	Free to residents of Norfolk City.
Hill Top—Danville	60	00	60	All pay.
Tidewater Memorial—Lynnhaven	34	16	50	All pay.
Roanoke	42	27	69	Free to residents of Roanoke.
Total	417	148		

tenths negro patients for each available bed. Is this a just distribution when tuberculosis is three times more prevalent among the negro than the white?

In nearly every instance when an application is made for admission to a sanatorium preference is shown the early case, not only in this State but throughout the South, except where there are small children in the home. Is it not just as important, both from an economical point of view and for the sake of suffering humanity that these advanced and open cases be hospitalized and isolated in an effort to stop the spread of the disease? Is not the advanced case just as much a care of the State as the early case?

We need more beds, especially more *free beds* to care for the *indigent cases.* The waiting list for free beds in our State institutions at present is about six months long. When the present building program is completed, which will be some time this fall, there will be available in the entire State 603 free beds for white indigent cases and 362 for negroes. One can readily see there should be a larger increase in free beds for negro patients.

If we ever expect to conquer this disease, and conquer it we must, it will be necessary to concentrate our efforts on the negro. Tuberculosis is three times more prevalent in the negro than in the white and we have three times as many beds for white patients as we have for colored—1,237 beds for whites as compared with 414 for colored. Our business life and social life is so interwoven with that of the negro it is absolutely impossible to cure tuberculosis in one unless we cure it in the other at the same time. It is imperative that we concentrate our efforts on the negro problem. They should be assisted not in proportion to the taxes they pay but in proportion to their need, since, as previously stated, the greatest danger of the disease to society exists in the negro because of its greatest prevalence in the negro.

TUBERCULOSIS IN THE AGED

It is a known fact that when old people are found to have tuberculosis it is almost impossible to teach them to take care of themselves and protect others from infection. They will not cover their mouths during a cough or sneeze, nor will they try to protect and destroy their sputum. Their idea is that they have lived all these years with this old cough, it has not hurt them, and they do not see how they can harm anyone else. Elderly people with a chronic cough and positive sputum are a menace to society and should be isolated. In looking through my files for the past eight months I find there were seventeen new cases of tuberculosis listed. Of this number six were over forty years of age and three over fifty years of age. In the Tidewater Memorial Hospital out of one hundred and sixty admissions there were thirty-nine, or nearly 24.3 per cent, over fifty years of age. One case was seventy-two and another eighty years of age when discovered.

Tuberculosis has been known as a young person's disease. Why is it that we are finding so many elderly people with the disease at the present time? Is it that our case finding program is getting slack? Is it that people are breaking down later in life, or is it the result of better care and treatment? In many

TABLE 3

NUMBER OF BEDS	WHITE	COLORED	DEATHS FROM TUBERCULOSIS—1938 WHITE	COLORED
Total State beds	770	266	----	----
Total Municipal beds	417	148	----	----
Mount Regis, private	50	--	----	----
	1,237	414	861	948
			About 1.5 beds to each patient.	2.3 patients per bed.

instances Sanatorium treatment has enabled them to pass into a chronic state and live to be old. But the most of them are recently discovered cases. The writer feels they have had tuberculosis a long time in a mild form, their resistance has been good, and progress of the disease very slow. This makes them all the more dangerous to society, and they should be isolated when discovered and kept in isolation until their sputum is free of tubercle bacilli.

THE CONDITION IN THE OTHER SOUTHERN STATES

The writer sent the following questionnaire to the Departments of Health of all the Southern States: 1. What is the number of recorded deaths in your state from tuberculosis in 1938? A. White. B. Colored. 2. How many beds are there in your state for treating tuberculosis? A. White. B. Colored. 3. How many beds do you have for indigent patients? A. White. B. Colored. 4. Do you show preference to the early case over the advanced case? 5. Approximately how long is your waiting list for applicants?

As you will see from Table 4, I got a good response. Only three states failed to answer all questions.

All of them are short of beds in proportion to the number of reported deaths. All of the states are much behind in the number of available beds needed for treating negro patients. They are all short on free beds for indigent cases. Practically all of the state Sanatoria throughout the South show preference to the early or curable case, leaving the advanced or helpless cases to shift for themselves; practically all had a long waiting list. I contend this is not right and some other method will have to be worked out if we wish to conquer this disease any time in the near future. The waiting list in all of the Sanatoria varied anywhere from fifty applicants to 200, Virginia being the shortest with a waiting list varying from three to six weeks for the ambulant cases. The waiting list for free beds in Virginia was over six months long.

A SUGGESTED ANSWER IS THE COMMUNITY SANATORIA

Get a group of five or more counties to combine and build a hospital unit of a hundred or more beds according to its needs, the institution to be supported by the counties and subsidized by the State. I say a unit of a 100 or more beds because less than a 100 cannot be operated economically. We learned this by experience at Tidewater Memorial Hospital. The community sanatoria, we believe, is a sound idea, but we made two big mistakes. First, we in-

TABLE 4.

STATES	1938 DEATHS	WHITE	COLORED	BEDS	WHITE	COLORED	FREE WHITE	FREE COLORED
Arkansas	965	550	415	700	665	35	Free to indigents.	
†Alabama	1,620	637	983	405	305	100	Free to indigents.	
*Florida	966	400	566	800	500	300	600	200
*Georgia	1,612	602	1,010	605	418	187	Free to indigents. 150 county beds.	
*Kentucky	1,820	Not classified		1,118	Not reported		Free to indigents.	
*Louisiana	No reply			691	Not classified		Free to indigents.	
°Missouri	1,777	1,385	392	691	661	30	All free.	
*Mississippi	1,164	309	855	575	500	75	All free.	
*North Carolina	3,201	1,166	2,035	2,108	1,315	793	70 to 90% Free.	
†Tennessee	2,008	1,276	731	985	Not classified		All free	Only county.
Texas	No reply			2124	As listed by National Tuberculosis Association.			
*South Carolina	No reply	N. T. A. lists		905	Free to indigents.			

*1 County and State Sanatoria.
Florida.
Georgia.
Kentucky.
Louisiana.
Mississippi.
North Carolina.
South Carolina.

°Missouri did not include statistics from large cities.
†County Sanatoria only.
Alabama.
Tennessee.

corporated as a private corporation to be built and supported by private or voluntary contributions. This worked fine for awhile and would have been an ideal arrangement if one could have been sure of enough contributions, but people became weary and exhausted of giving indefinitely to a financially losing proposition, no matter how philanthropic. The sanatoria should be built and supported by tax funds. Tuberculosis being a public health problem should be supported by public funds. Secondly, fifty beds is too small a unit to operate economically. The administrative overhead is just as much or more for fifty beds as for a 100 bed unit.

We also found it very difficult to obtain the services of a trained and experienced physician for a small institution. There is no reason why negro and white patients cannot be taken care of at the same institution. It will be entirely too expensive to build and operate separate institutions.

We cannot expect the State to handle this entire program, as the drain upon the treasury would be too great. I still contend, however, that an advanced case of tuberculosis is just as much a responsibility of the State as an early case, and the State should see that they are taken care of, but whether it be by local, State or Federal funds is for the law makers and custodians of the public funds to decide.

The county sanatoria is not a new idea; they are being operated by a number of states, as you will see in Table 4.

If members of the medical profession believe in this program, then give it your earnest support. Speak to your local representative and ask him to support the budget as presented by our Health Commissioner in his request for an additional 100 beds for Piedmont Sanatorium. Encourage the idea, whenever and wherever possible, of building county sanatoria where they are needed. The advanced case of tuberculosis, both white and colored, must be taken care of if we wish to preserve the well-being of the people and conquer this dreaded disease anytime in the near future.

Wainwright Building.

KIELLAND FORCEPS.*

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In the preface of the late Sir Kedarnath Das' book, "Obstetric Forceps", is the following statement: "The obstetric forceps has been aptly described as 'a noble and beneficent instrument, rescuing more lives and cutting short more pains than all other instruments in the professional armamentarium.'" Das described more than 550 varieties of forceps and admitted that the list was not complete. The most useful of these, in my opinion, was presented before the Munich Gynæcological Society in May, 1915, by Christian Kielland, of Norway. To quote again from Das, "The new instrument differs from the ordinary type of forceps in the following respects; it is somewhat lighter in structure, its lock is not fixed but is sliding in character, and it has only an extremely small pelvic curve. The shape of each blade resembles that of a German bayonet. Kielland also devised a new method of applying these forceps and laid down rules for the application of his forceps to a head which lies in the transverse diameter."

The earliest models of forceps, such as the Palfyn, were adapted for the low forceps operation when the head had rotated so as to lie in the antero-posterior diameter of the pelvis. Smellie, in his book which was published in 1752, says that the "common way of using them formerly was by introducing each blade at random, taking hold of the head any how, pulling it straight along, and delivering with downright force and violence; by which means, both *os internum* and *externum* were often tore, and the child's head much bruised." For this reason, Smellie more accurately surveyed the dimensions and form of the pelvis, and the figure of the child's head and the manner in which it passed along in natural labors. He added the pelvic curve to the forceps. The blades, he says, ought always if possible to be introduced along the ears; by which means they approach nearer to each other, gain a firmer hold, and hurt the head less than in any other direction.

Smellie did not know of the internal ligaments of the skull or he would have added that an oblique or

*Read at a meeting of the Roanoke Academy of Medicine.

an occipito-frontal application of the forceps is more apt to cause a tear of the falx cerebri or the tentorium cerebelli than a lateral application. It remained for the classical work of Eardley Holland, in 1922, to show the advantage of the lateral application of the forceps from the standpoint of the baby.

Since Smellie's time countless changes have been made in the pelvic and cephalic curves, and in the locks and gadgets. It would seem that the idea was to make the blades fit the head more snugly and even to compress it, so that the forceps would not slip off in the first place, and the compressed head could be more easily delivered in the second place. It did not seem to occur to these inventors that when the blades of the forceps were locked securely to the sides of the baby's head they interfered with its flexion and that the head could not accommodate itself to the various planes of the pelvis to the best advantage. Moreover, a fixed lock frequently keeps one or the other blade from fitting the side of the head perfectly, especially where there is asynclitism. Finally, the more pronounced the pelvic curve the greater the tendency for the forceps to adjust itself to the pelvis rather than the baby's head. The best way to get an idea of the true philosophy of the forceps as a traction apparatus is to get a cork out of a bottle with two wires slightly bent at their tips. If the neck of the bottle were bent like the pelvic canal the illustration would be better. The wires are introduced on either side of the cork until their tips are beyond the distal edge of the cork. If they be kept on opposite sides of the cork and traction be made the cork will be drawn through the neck of the bottle and in its course will adjust itself to curves and contours of the neck. One does not have to worry about the wires slipping off, the neck of the bottle will prevent that, nor does one have to compress the cork with the wires.

The Kielland forceps acts in the same way. When properly applied to the sides of the baby's head their tips reach just beyond the malar bones. There is scarcely any pressure on the head, which can flex and extend and rotate as the birth canal may determine. For that reason delivery can be effected with less force than with any other type of forceps. On several occasions I have been unable to deliver the baby with Tarnier's axis traction forceps without using unwarranted force. The axis traction forceps were removed and the Kielland forceps applied and the baby was delivered with comparative ease.

TECHNIC OF APPLICATION

Kielland emphasizes the importance of an accurate diagnosis of the position. The forceps are held before the patient in the position they should be in when applied, with the front of the forceps (indicated by a little knob on each blade) directed towards the leading point of the head—the occiput in cephalic presentations, the chin in face presentations. Two fingers are now introduced into the vagina and are hooked under the anterior lip of the cervix. The anterior blade, with the concavity of the cephalic curve upwards, is introduced between the fingers and the cervix very much as you would introduce an urethral sound. When introduced properly, the beak can be felt through the abdominal wall several inches above the symphysis. The blade is now gently turned on its long axis (the round part of the shank resting on the fetal head) towards the side on which the small knob is located through an arc of 180 degrees. The concavity of the blade adjusts itself to the side of the fetal head. The handle should lie in the midline. The posterior blade is now introduced under the guidance of two fingers between the head and the posterior lip of the cervix. The shank should fall into apposition with that of the anterior blade without difficulty or without any rotation. The sagittal suture should run at right angles to the plane of the forceps. Traction is made in the direction of the handles. It should be emphasized that no force should be used in the introduction of the forceps or in the rotation of the anterior blade.

The above was taken from an article I wrote in 1926 for the VIRGINIA MEDICAL MONTHLY. In reviewing it at the present time, I have to criticize the expression, "hooking the fingers under the anterior lip of the cervix". One might get the idea that the forceps are to be applied before full dilatation of the cervix. Such is not the case. Many of the bad results reported from Germany by Fink and others are due to attempting a delivery before full dilatation. When the cervix is fully dilated but still encircling the head the forceps can be used to advantage. Before full dilatation has occurred the forceps can be applied, but to attempt a delivery is hazardous to both the mother and the baby.

Just after the cervix retracts back of the baby's head the introduction of the anterior blade by the technic described by Kielland is sometimes impossible as the blade cannot be directed into the uterine cavity. If delivery at such a time is indicated, the

forceps should be applied in accordance with the usual technic, i.e., the posterior blade should be introduced under the guidance of the fingers until it lies over the posterior ear, and the anterior blade introduced in a similar manner and then gently rotated until it is opposite the posterior blade.

A little later when the cervix has still further retracted so as to become continuous with the vaginal canal, it offers no obstacle to the introduction of the anterior blade according to Kielland's technic. At such a time the cervix cannot be felt by the examining finger, and of course the two fingers cannot be hooked under the anterior lip.

Because of the comparatively greater ease of applying the Kielland forceps when the head is high in the pelvis, there is the temptation to apply the instrument too early. The classical conditions for forceps application must be present with the Kielland forceps just as with any other model. The cervix must be fully dilated, there must be no excessive disproportion between fetal head and the pelvic canal; the membranes must be ruptured, the bladder must be empty, and the position accurately known. Even if the above conditions are present, if the head has not descended to the mid-pelvis, I prefer to do a version and extraction.

Since my paper in 1926, I have used no other model except on rare occasions when the Kielland forceps was not available. At the Johnston-Willis Hospital it is the only forceps available unless a member of the courtesy staff brings his own. I have to report 2,288 Kielland forceps deliveries since 1926. There were three high forceps operations with two still-births. The high forceps operation, even with the Kielland forceps, has deservedly fallen into disrepute. The 2,285 cases were divided between the low and mid forceps in the ratio of about two to one. There was one face presentation, eight brows, 659 right occipito anteriors, 1,136 left occipito anteriors, 248 right occipito posteriors, and 196 left occipito posteriors. In three frank breech cases, in which progress stopped after the breech had gotten too low to bring down a foot, the Kielland forceps was applied over the trochanters and the breech extracted. These were classed as low forceps operations. In thirty-seven instances the presentation was not stated. This does not mean that the diagnosis was not made —it is merely a reflection on the history taking. Most of these were in my eclampsia group and the interne was too busy to write down such a minor item as presentation.

There were forty-four still-births and thirty-five neonatal deaths, an uncorrected fetal mortality of 3.45 per cent. Four mothers died, one of eclampsia, one of pre-eclampsia, one of placenta previa and one of inversion of the uterus, a maternal mortality of 1.75 per thousand births. As only in one instance of multiple pregnancy were both twins delivered by forceps, there is no need to make correction for this factor. We had no bladder injuries or urinary fistulae as has been reported by Longaker, *et al.* Episiotomy was done 1,361 times. This left 927 women whose perineum was subjected to the stress of the operation. Three hundred and twenty-four of these had no laceration, 496 a first degree tear, ninety-five a second degree and twelve a third degree. It is interesting to note as episiotomies became more frequent in the series there was a definite decline in the fetal mortality.

In conclusion, the advantages of the Kielland forceps are:

1. Its lightness and simplicity of construction makes it easy to operate.

2. Its sliding lock permits of a better adjustment to the side of the baby's head.

3. Its almost complete absence of pelvic curve permits the forceps to stay on the sides of the fetal head when the head lies transversely.

4. The handles of the instrument indicate the direction of pull.

5. When used to rotate the head there is no leverage and one can visualize easily the path of the blades.

6. It does not fit the head well in any but a cephalic application. This is sometimes cited as a fault, but really it is its greatest merit. When one applies the forceps after having made an incorrect diagnosis, the forceps do not feel right. Removal of the forceps and a more careful examination will disclose the error in diagnosis.

7. The stress of the extraction is expended on the baby's malar bones and causes no cerebral injury.

8. Flexion and extension of the head is not interfered with and the baby's head can readily accommodate itself to the pelvic canal.

Its chief fault is that one is tempted to use it when the indications for forceps application and the conditions requisite for forceps operation are not present.

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Medical Arts Building.

SCIATIC NEURITIS AND LOW BACK PAIN CAUSED BY RUPTURE OF THE INTERVERTEBRAL DISCS.*

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Since the dawn of medical history chronic sciatic neuritis with low back pain has attracted the attention of those engaged in the healing art. It has gone under a variety of names and has received a still greater variety of treatments. The treatments have been largely empirical and the names have been applied often without regard to the fundamental pathology. In only a small percentage of the group of patients suffering with this syndrome can the objective pathology adequately explain the symptoms. Without going into the numerous possible causes we shall confine our discussion to that group whose symptoms are due to rupture of the intervertebral discs.

Rupture of the intervertebral disc was first described by Kocher in 1896.[1] From that time until 1934 only scattered reports are noted in the literature. The terminology used has not been consistent and it is probable that such lesions as intervertebral disc chondroma, fibrochondroma, myxechondroma, and Schmorl's nodules have often been one and the same thing and were what we now call rupture of the intervertebral disc. In 1934 Mixter and Barr reported nineteen proved cases.[2] Since then it has been reported in increasing numbers from clinics throughout the country. The fact that within a period of a few months we have discovered and treated four cases in this, a 360-bed hospital, would indicate that it is not as rare as it is commonly considered.

*Read before the Norfolk County Medical Society.

Rupture of the intervertebral disc may occur at any level in the spine, but 65 per cent to 92 per cent of the cases are at the level of the fourth or fifth lumbar.[1, 3] It is in the group involving the last two lumbar discs that we are particularly interested. It is more common in males than females. The average age is thirty-seven years. The disc usually ruptures posteriorly and laterally in such a manner that the spinal nerve is compressed by the protruding

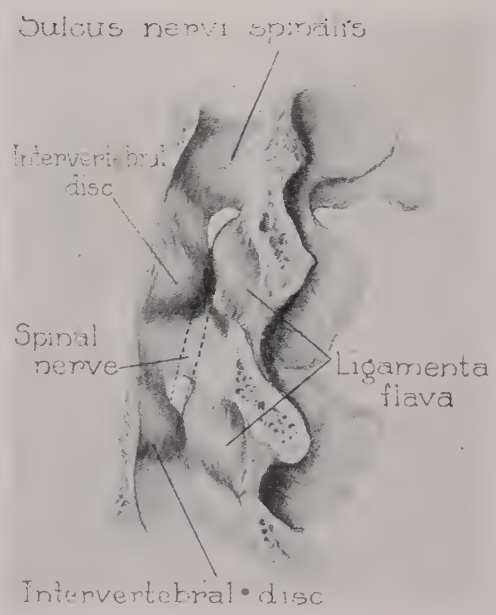

Fig. 1.—Sketch showing the lower portion of the intervertebral canal closed by the disc anteriorly, and the ligamentum flavum posteriorly. The spinal nerve emerges through the upper portion of the canal (Ref. 10).

mass (Figs. 1, 2, 3). The duration of symptoms is from several months to several years. No permanent relief is obtained from any form of treatment other than operation.

The etiology in most of the reported cases is given as trauma. The type of trauma varies widely, but the most common form is lifting a heavy weight.

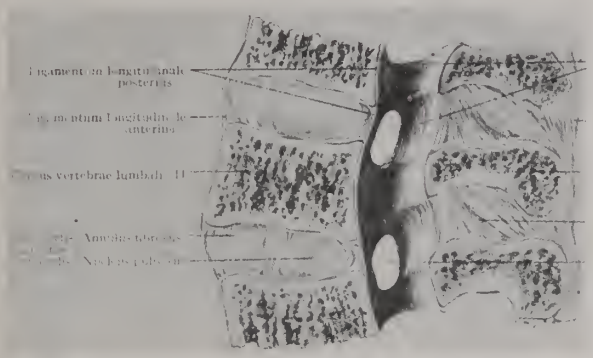

Fig. 2.—Sagittal section through the lumbar spine (Surgical Anatomy, Callander; W. B. Saunders and Co., 1933.

Twisting strains, falls, and other injuries are less frequent causes. In an interesting experiment by Barr[1] a section of the lumbar spine was removed at autopsy and placed in a vise (Fig. 2). Varying amounts of pressure were then applied. As the pressure was increased the disc decreased in diameter and bulged at the periphery. When the pressure was released the disc resumed its normal shape. This could be repeated indefinitely, demonstrating the spring-like elasticity and cushioning action of the disc. When the pressure was carried beyond a certain point the annulus fibrosis ruptured at the periphery, and the nucleus pulposus was extruded. The disc then lost its elasticity and failed to return to its normal shape when the pressure was released. There have been several reports suggesting that spinal puncture could be an etiologic factor in rupture of the disc.[4, 5] It appears entirely plausible that an area of lessened resistance in the disc could be produced by a spinal puncture needle, allowing the nucleus pulposus to escape.

The most universal and characteristic symptoms in all cases is pain and it is often the only symptom.[6] It is severe and persistent, commonly starting low in the back and extending down the posterolateral portion of the hip, thigh, and calf. The pain is usually lessened by lying down and is made worse by bending or lifting. It is exaggerated by sneezing, coughing, or straining. The pain in the posterolateral thigh is present in 100 per cent of the cases.[1] Pain in the lumbosacral region is usually, but not always present. The pain in the back is thought to be due to the local irritation of the ruptured disc. The sciatic pain is due to irritation from pressure on the spinal nerve.

In the physical examination a limp in gait is seen on the affected side. Pain is produced by straight leg raising on the side of the lesion. Motion in the lower lumbar spine is usually restricted. Areas of tenderness vary and may be absent. The knee jerks are unaffected; the ankle jerk is absent or

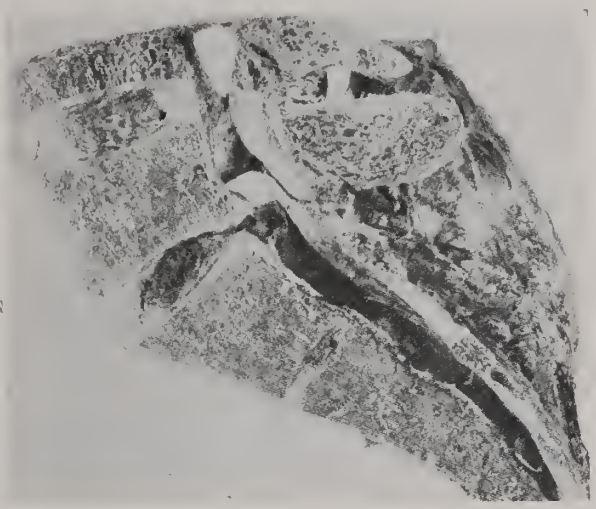

Fig. 3.—Photograph of anatomical specimen showing rupture of nucleus pulposus posteriorly (Ref. 8).

diminished in the majority of cases, but in mild or early cases it may be normal. Some atrophy of the hamstring and calf muscles may be present, but not necessarily so.

The laboratory findings are of little value except for the spinal fluid. A non-protein nitrogen of above 40 mgm. per cc. is highly suggestive of some pathology in the spinal canal.[1, 2]

The final diagnosis is based on the roentgenologic examination after the injection of lipiodol into the spinal canal. We have found 2 to 3 cc. ample to clearly outline a filling defect, although the majority of authors advise the injection of 5 cc. The injection of lipiodol is reserved for those cases in which the findings are fairly conclusive of a ruptured disc. It is never absorbed and should not be used promiscuously, even though there is little evidence that it produces any lasting symptoms.[6] In a patient with chronic sciatic pain we make every effort to find some cause for his symptoms other than a ruptured

disc. Prolonged observation and treatment are carried out, including bed rest, physiotherapy, eradication of foci of infection, injections of saline into the

Fig. 4.—Normal roentgenological findings in the lower dural sac after injection of 5 ccs. of lipiodol.

sacral canal, Buck's extension, sacro-iliac belts and jackets, and sometimes Ober's fasciotomy where it appears indicated. If improvement does not occur, and no orthopedic cause for the patient's symptoms can be demonstrated a spinal fluid examination is made. An elevated non-protein nitrogen is usually sufficient evidence to warrant a lipiodol injection intraspinally. Even if the non-protein nitrogen is normal it should be done where the symptoms warrant. A high non-protein nitrogen is not absolutely essential to the diagnosis and we were almost led astray on this point in several cases. After the injection of lipiodol, careful study under the fluoroscope should be done, allowing the column of opaque fluid to run up and down repeatedly by tilting the table. Spot films are made when a filling defect is demonstrated (Fig. 4).

In review of the diagnostic criteria in a typical case, we have a patient with severe pain in the hip, extending down the thigh and leg. There is some low back pain. He has received extensive treatment over a period of months without relief. The ankle jerk is diminished on the affected side, and there is a very slight atrophy of the thigh and calf muscles. Spinal fluid examination shows a non-protein nitrogen of above 40 mgm. per cc. Fluoroscopic examination after the injection of 3 cc. of lipiodol into the spinal canal shows a notched, unilateral filling defect opposite one of the lower lumbar intervertebral discs.

Once the diagnosis is established the treatment is operation. No conservative treatment will give any permanent relief. The operation consists of laminectomy and excision of the protruding portion of the disc. Adequate exposure may be obtained by removing one lamina and biting away a small portion of the lamina above and below. The ruptured disc may then be gently palpated. It appears as a small marble-like elevation in the lateral floor of the spinal canal. The nerve which emerges at this level is found to be pressed firmly against the articular facet by the disc, and cannot be freed until the articular facet is cut away. The nerve and dural sac may then be retracted and the small tumor-like mass exposed. It is usually lying free and may be easily

FOUR CASES OF RUPTURED INTERVERTEBRAL DISC TREATED BY OPERATION

PATIENT	AGE	ADMISSION DIAGNOSIS	DURATION OF SYMPTOMS	HISTORY OF INJURY	SPINAL FLUID PROTEIN	DATE OF OPERATION	NERVE INVOLVED	END RESULTS
WLL	22	Sciatic Neuritis	14 Mo.	Heavy Weight Fell On Back	5 Mg.	5/30/38	5 L.	Complete Relief of Pain
FGG	38	Sciatic Neuritis	12 Mo.	None	12 Mg.	7/1/38	5 L.	Complete Relief of Pain
AG	29	Lumbago	2 Mo.	None	18 Mg.	9/23/38	5 L.	Complete Relief of Pain
LV	44	Sciatic Neuritis	1 Mo.	Twisting Strain	8 Mg.	9/30/38	5 L.	Complete Relief of Pain

Summary of four cases of ruptured intervertebral disc treated by operation. Note that all were at the level of the 5th lumbar. The low spinal fluid protein readings are probably due to the use of the precipitation rather than colorimetric methods. The former has now been abandoned.

lifted away. A probe passed down to the central portion of the ruptured disc demonstrates its connection with the nucleus pulposus.

Whether a spinal fusion should be done before closing the wound seems to be largely a matter of opinion. Since only one lamina has been removed we believe spinal fusion is hardly necessary. A blood transfusion is given routinely at the end of the operation.

The immediate results following this treatment are rather dramatic. It has been our experience that the sciatic pain is abolished immediately and that it does not recur.

We have used no form of external fixation of the spine following operation. The patient is kept in bed on an air mattress for two weeks. He is then allowed up and given gradually increasing exercises.

A brief summarization of four cases operated on in this hospital is given in the accompanying chart. None of these cases have been of sufficient duration to estimate accurately the final results. They are all free of pain at this time and are up and about. One has returned to manual labor. Before operation they were all complete economic losses.

This subject is relatively still in its infancy and may require many years to attain its proper evaluation in medicine. That it will have an important place we feel satisfied, and another clinical entity will have been removed from the confused category of "sciatica" and "sacro-iliac strain".

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ARSENICAL EXFOLIATIVE DERMATITIS WITH TOBACCO BEING THE PROBABLE SOURCE OF THE ETIOLOGICAL AGENT—PRELIMINARY REPORT.*

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The author wishes to emphasize the fact that this is purely a preliminary report, and he fully realizes that the number of cases herein reported is too small to draw any definite conclusions.

The purpose of this paper is to call your attention to an heretofore unrecognized source of arsenic poisoning.

Exfoliative dermatitis is a clinical entity which involves considerable portions of the entire body. The skin becomes reddened and covered with lamellated scales which are exfoliated or shed from the surface; itching and burning may be present in all degrees or entirely absent. Chilliness is always a prominent symptom.

There are many causes of exfoliative dermatitis; various other skin diseases such as psoriasis, eczema, erythema multiforme and blood dyscrasias may be responsible. Drugs such as mercury, phenolphthalein, chrysarobin and arsenic may also cause it. This paper is limited to arsenical exfoliative dermatitis.

Intravenous injections of arsenic frequently produce the disease in a mild or severe form, probably due to an individual hypersensitivity, and this is one of the most serious complications of anti-syphilitic treatment. For years it has been recognized that arsenate of lead, as an insecticide on fruits and vegetables, might be the source of arsenic or lead toxicosis. Various steps have been taken to prevent the public from its use.

In September, 1938, *Consumers' Research Bulletin* made a determination of five brands of cigarettes: namely, Camels, Murads, Lucky Strikes, Pall Malls, and Lord Salisburys and issued the following statement:—"The lead content was found to vary from 11-30 ppm, and the arsenic content was found to vary from 6-14 ppm, all too high for safety to the heavy smoker." We all know that for the past several years practically all farmers have been using arsenate of lead spray on tobacco as an insecticide. This paper will limit its discussion to clinical arsenical exfoliative dermatitis with cigarettes being the probable source of the arsenic poisoning.

Case 1.—Mr. J. A. B., fifty-three-year-old white man, textile worker, was first seen in consultation on September 14, 1938, at which time he gave a history of an eruption of several months' duration. This patient had a generalized, severe exfoliative dermatitis accompanied by marked symptoms of burning, itching and chilliness. The patient himself stated that he thought the eruption started as poison ivy and he was given a series of poison ivy extract but his condition went from bad to worse. The routine physical examination revealed nothing of particular interest except for his skin involvement. He was not anemic; his white blood cell count was 12,300 and the differential examination of the cellular elements of the blood was within the limits of normal. Clinically, this patient presented a typical case of arsenical exfoliative dermatitis but at first no source of arsenic could be determined. He was seen at Duke Hospital where a blood determination was found to be positive for arsenic; an examination of the cigarettes which the patient was smoking showed that they contained arsenic. It has been impossible to convince this patient, for any length of time, that cigarettes might be the cause of his condition. He will refrain from smoking for a while and show definite improvement but as soon as he is able to be up again will start smoking, which will be followed by an exacerbation.

Case 2.—Mr. R. A. D., fifty-eight-year-old male, textile worker, was first seen on November 29, 1938, giving a history of a generalized "breaking out" of three months' duration. At the time of examination his entire skin was involved, accompanied by extreme itching and it was necessary to hospitalize him. Routine examination was negative except for marked exfoliative dermatitis of his skin; urine was negative for both albumin and sugar; hemoglobin was 92 per cent; white blood cell count was 8,400 and the differential examination of the cellular elements of the blood was within the limits of normal. It was at first thought that some Indian herb juice which this patient was taking was the cause of his condition; however, during the course of one month in the hospital under symptomatic treatment he showed no improvement. Then a speciman of blood was sent to Dr. W. E. Bray, of University of Virginia, who

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reported approximately .125 mgm. of arsenic per 100 c.c. of blood. An arsenic determination on the cigarettes which he was smoking showed that each cigarette contained approximately 0.06 mgm. of arsenic. This patient was immediately placed on intravenous injections of calcium thiosulfate at two to three day intervals and taken off of cigarettes, and today he is entirely well.

Case 3.—Mr. R. W. C., a sixty-six-year-old white textile worker, was first seen on January 30, 1939, complaining of an eruption on his hands and arms of several months' duration. As this eruption was on the exposed surfaces it was first thought that he had a contact dermatitis; however, in spite of the fact that he stopped his work, and his arms were kept up in wet dressings, the eruption progressed to involve the entire body. The eruption was accompanied by marked pruritis. In the routine examination it was found that he had a prostatic infection which was cleared up under treatment but with no response in the skin condition. He had no anemia and his examinations showed no evidence of blood dyscrasias. An examination of his blood was found to be positive for arsenic; when cigarettes were taken away from him and he was placed on intravenous injections of calcium thiosulfate his condition cleared up entirely in from three to four weeks.

Case 4.—Mrs. L. R., seventy-year-old white housewife, when first seen on March 20, 1939, showed a moderate degree of exfoliative dermatitis which was more marked around her face, neck, arms and back; the condition had been going on for approximately one month. Routine examination revealed her urine to be negative for both albumin and sugar; her hemoglobin was 83 per cent; and blood Wassermann was negative. Examination of her blood for arsenic showed .02 mgm. per 100 c.c. In questioning this patient it was found that she had been using snuff frequently for the past two or three years. She has been placed on intravenous injections of calcium thiosulfate and asked to refrain from using snuff but her progress cannot be reported at the present time because she has not been on treatment long enough.

Case 5.—Mr. C. T. C., thirty-six-year-old white farmer, was first seen on March 31, 1939, at which time he complained of an eruption accompanied by marked itching; it was very prominent over his face, neck, arms and back but extended over his entire body. The eruption was of approximately two months' duration. Routine examination of his urine was negative for both albumin and sugar; hemoglobin was 100 per cent and examination of the blood for arsenic was .24 mgm. per 100 c.c. It is of interest to note that this patient had much more arsenic than the previous ones. However, his eruption was much more acute. He was told at this time that it was thought that his condition was caused from the arsenic in cigarettes and he was asked to refrain from smoking. When he returned six days later, having been on nothing more than a mild, soothing ointment, locally, his condition was 100 per cent better; he was then placed on intravenous injections of calcium thiosulfate.

The patient voluntarily gave the following history: he stated that when the itching became more pronounced he was unable to sleep and, consequently, being up so much, he smoked much more. When he started smoking more he decided it would be more economical to buy a cheaper grade of cigarette and he noticed that his condition immediately became worse; when he went back to the higher priced cigarette he showed improvement. It is of importance to note here that the cheaper cigarette contains more late tobacco and it is the late tobacco which is more worm eaten and consequently more arsenate of lead is used on it.

Case 6.—J. F., eighteen-year-old colored factory boy, unemployed at the time, came in stating that following the twelfth injection of "606" his skin began to itch; he had noticed no itching or discomfort following any of the previous treatments. He felt that the "shot" had probably caused the itching, so did not go back to his physician for further anti-syphilitic treatment. However, his condition gradually became worse and exactly eight weeks after the last intravenous injection he came in showing a marked exfoliative dermatitis very characteristic of those seen following anti-syphilitic therapy.

I would like to call your attention to the fact that the injections were stopped immediately after the first sign of itching, but the patient's condition continued to progress for eight weeks. This boy was in very bad shape and had not only a severe exfoliation but also a marked edema accompanied by a mild degree of jaundice. Due to breakage of the tube in transit a determination for arsenic was not obtained but it was thought that he had an arsenical exfoliative dermatitis. He was immediately placed on intravenous injections of calcium thiosulfate and asked to refrain from smoking and in two weeks his condition had entirely cleared up.

It is felt that if cigarettes are a source of arsenic poisoning the patient receiving anti-syphilitic treatment is the one who might afford the more serious complications. It is entirely possible that mild cases of arsenical dermatitis following arsphenamine do not clear up as promptly as they should even though the physician discontinues the arsphenamine immediately because the patient continues to receive arsenic from tobacco.

Case 7.—Miss F. P. C., twelve-year-old white school girl, has complained of generalized skin eruption accompanied by moderate amount of itching of approximately six months' duration. Routine examination of blood and urine was entirely negative. Examination of her skin revealed a generalized erythema accompanied by mild exfoliation. This patient does not use tobacco in any form and her blood was negative for arsenic. Clinically, this patient could fall into the group of arsenical exfoliative dermatoses. This case is being presented as a control with the idea in mind that she lives in the same section of the country as do the others and eats the same types of foods and would tend to show that arsenic is not obtained from fruits and vegetables. It is felt that the sensitizing agent in her case is eggs, for as soon as eggs were omitted from her diet she began showing improvement.

Case 8.—Mr. J. H. P., who is a control, is a man in perfect health and a moderately heavy smoker of both pipe and cigarette tobacco. His blood was found to be entirely free of arsenic.

Case 9.—Mr. E. E. B., who is also a man in perfect health and smokes from three to four packs of cigarettes a day, showed a negative blood test for arsenic.

A study of these cases brings up one very important consideration, namely, why, in two people smoking approximately the same number of cigarettes a day, one will show arsenic in his blood and have an arsenical dermatitis, whereas the other will be free from arsenic and have no skin eruption. A solution of that problem demands further research.

It is frankly admitted that in a patient with a severe dermatitis the excretory organs are markedly impaired and it may be impossible for him to excrete a small daily dose of arsenic. If that is true, one would have to come to the conclusion that the arsenic found in the blood of these patients with exfoliative dermatitis is secondary to the disease and not the cause of it. The body has many store houses for arsenic, chiefly the skin and hair. It has been thought for years that the cause of an arsenical dermatitis is some type of allergy. It is the author's belief that these patients get exfoliative dermatitis from the arsenic in their tobacco because they happen to be hypersensitive to the arsenic and this allergic phenomenon probably causes a spasm of the arterioles, thereby preventing normal excretion in that patient, which of course results in retention in the body. That would explain why the majority of individuals can ingest arsenic into the body without any harmful results.

The clinical observations on these patients, namely, that they have shown much improvement when tobacco has been removed is probably the most definite proof that this is the cause of these cases. It has already been proven that tobacco contains arsenic.

There has been some work to show that the intravenous injection of calcium thiosulfate in arsenic poisoning will cause an increased amount of arsenic in the urine and a corresponding decreased amount in the blood. It is hoped that time will permit further studies in regard to this point pertaining to the urinary out-put of arsenic. An effort is also being made at the present time to determine the variation in the amount of arsenic in tobacco before it is burned and afterwards, in an effort to see how much arsenic becomes volatile and is passed in the smoke.

SUMMARY

This paper has made an effort to bring to your attention another source of arsenic poisoning, namely, tobacco. It is felt that the arsenic in the blood of these patients with exfoliative dermatitis is indicative of the fact that it is the cause of the disease. It is, however, recognized that we have not proven but what the arsenic might be in the blood secondary to excretory impairment. It has been shown that the blood of normal individuals, even though heavy smokers, does not contain arsenic. We wonder if they might not store this arsenic in the hair and still get no untoward skin reactions. The author recognizes that the cases herein reported are not sufficient to draw definite conclusions, but thinks they are sufficient in number to point out that cigarettes and tobacco might be and probably are the sources of arsenic and lead poisoning in some individuals.

The author wishes to thank Miss Margaret Tatum, Technician, for her assistance in laboratory procedures.

CANCER OF THE RECTUM.*

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The past decade has witnessed a widespread interest in the subject of cancer. The medical profession and many other interested groups have organized campaigns for the distribution of cancer propaganda. Clinics have been established to aid in the diagnosis and treatment of cancer. The medical profession and the lay organizations concerned in this noble work have accomplished much in helping in the discovery and in the treatment of malignant disease. The good effect produced by the combined efforts of these interested groups is manifested by the fact that more cancers are being discovered. This would indicate that cancer propaganda has been effective in causing a larger number of patients to seek medical attention, and that improvement in the efforts and ability of the medical profession to discover malignancies has been made.

Cancers of the rectum, too, are being discovered more often now than during the preceding decade—so much so that there appears to be an actual increase in the incidence of cancer of the rectum. In spite of this fact, the incidence of inoperable cancers of the rectum is yet appallingly high—too high to let a diligent medical profession rest with the assurance that all is being done that can be done to facilitate the early discovery of these dreaded lesions. Statistics reveal that from 70 to 75 per cent of patients with malignant lesions of the rectum are inoperable at the time they are discovered. It is with the recognition of this fact that I bring up the subject of cancer of the rectum. It is not my intention to discuss fully the diagnosis and treatment of rectal malignancies, but the desire to review the methods that can be used to aid in the discovery of such lesions early enough to permit the employment of curative procedures, and thereby to reduce the extremely high incidence of inoperability.

The responsibility for the high incidence of inoperable cancer of the rectum rests upon the patient, upon fate, and upon the physician. Some cancers of the rectum do not cause symptoms in the early stage of their growth, and the patient has no warning of the presence of cancer—this is the part played by fate. The part played by the patient is largely one of procrastination. The patient with cancer may fear the worst and yet lack the temerity to have an examination made. The average person, however, is inclined to attach no serious importance to more or less minor changes that occur in his intestinal habits. The individual in whom these changes occur attempts to treat himself, taking one medicine, then another, until he becomes perplexed at the intractability of his symptoms or alarmed at the occurrence of new symptoms. Then he seeks medical attention. Upon us, the profession, rests the responsibility of investigating the bowel complaints of these individuals. Too many of us still are prone to treat these people symptomatically, and not to investigate immediately the cause of their symptoms. The high incidence of inoperable cancer of the rectum can be further reduced through the continued efforts of the profession in making people realize the necessity for consulting their physicians without delay at the occurrence of any change in the intestinal habit. While many of these people will not have cancer, we should not regard the complaints of any of them as of a minor nature until we have proved as far as possible that a cancer does not exist.

That cancer of the rectum is frequently overlooked is attested by statistical data. Of 2,732 patients observed at the Mayo Clinic in whom cancer of the bowel was found by proctoscopic examination, "1,073 had been attended by physicians prior to admission". Of this group who had obtained medical attention prior to admission to the clinic, 521 cases underwent surgical operations for conditions other than the major disorder, and "the malignant lesion had passed undiscovered".

One must not be led astray by the age of the patient with symptoms referable to the larger intestine. While statistics show that cancer of the rectum occurs most often in people over forty years of age, they also reveal that rectal cancer is found in all ages from childhood to senility.

SYMPTOMS

There are no symptoms pathognomonic of cancer of the rectum. One needs only to review the chief

*Read before the Roanoke Academy of Medicine at its March, 1939, meeting.

complaints of patients in whom cancer is found to be assured of this fact. The most outstanding symptoms are about as follows:

1. Bleeding.—There is nothing characteristic about the color, the amount, or the consistency of the blood passed by rectum, although it is present in 90 per cent of the cases.

2. Pain.—In the majority of patients, actual pain is a late symptom. There is no constant location of the pain. Many patients will complain of pain "up inside" the rectum. Others will feel pain in the abdomen, or in the hips of back, while still others have an "indefinite" pain.

3. Constipation.—Actual constipation is usually a late symptom. The sensation of incomplete evacuation causes these people to feel that they are constipated. When obstruction occurs from cancer, actual constipation may and does exist.

4. Diarrhea.—As with constipation, there is no actual diarrhea. The frequent desire to empty the rectum leads the patient to believe he is having a diarrhea, whereas, in truth, only small quantities of stool are passed. The condition of tenesmus may develop with frequent straining at stool. What one patient terms diarrhea, another will call constipation. The frequent evacuation of small quantities of mucus and blood and the occurrence of tenesmus is a frequent complaint, and it is very significant.

5. Protrusion.—Internal and external hemorrhoidal masses usually account for this complaint. It often develops after prolonged straining at stool.

6. Itching, fistula and fissure represent the chief complaint of some of these patients.

Of course, other symptoms such as malaise, weakness, anemia and other changes in the blood picture, weight loss and loss of strength may occur.

It must be emphasized that there may be no symptoms suggestive of malignancy of the rectum in its early stages. Any change in the normal bowel habit must be viewed with a suspicion of malignancy until proven to be otherwise. It is our obligation as physicians to insist upon the proper examinations being made that are necessary to prove or disprove the existence of a malignant lesion.

DIAGNOSIS

The patient's symptoms will direct our attention to the bowel. There are three methods of investigation that may be necessary before a diagnosis of cancer of the rectum can be made. They are digital examination, proctoscopic examination, and roentgenological examination.

A digital examination is important in the investigation of any rectal complaint for several reasons. Inspection and palpation of the anal orifice may reveal a painful lesion such as a fissure, a sinus or hemorrhoids. When such lesions are discovered, necessary steps can be taken to prevent undue pain caused by proctoscopic or other types of examination. The insertion of the finger into the rectum may disclose the presence of a rectal tumor. The palpation of a tumor in the rectum lets the examiner know where it is located and the amount of fixation so that he may pass the proctoscope in a manner that will avoid injury to the lesion. The troublesome bleeding caused by injury to a tumor by instrumentation thereby can be avoided or at least minimized.

It has been stated that 75 per cent of all of the cancers that occur in the colon can be observed by proctoscopic examination. In other words, three out of four cancers of the colon occur in that part of the bowel which can be inspected through the proctoscope, 25 cm. to 30 cm. from the anorectal margin. Except in rare instances, cancers of the rectum and rectosigmoid appear as discrete lesions with no other pathological conditions of the mucosa being present. Consequently, there is little danger of confusing the picture presented by cancer with that presented by other diseases of the rectum. Cancer of the rectum has been observed in chronic ulcerative colitis, polypoid disease, and tuberculosis of the colon. The proctoscopic examination enables one to determine the presence of a lesion, and the size and the extent of the lesion. Through the proctoscope, we may also remove a section of tissue for biopsy.

Polyps and adenomas of the rectum deserve special mention. The presence of a somewhat sessile polyp in the rectosigmoid should be viewed with suspicion. A cancer above such a polyp is frequently observed. This polyp has been designated a "sentinel polyp". Upon encountering a polyp, one should certainly rule out any possibility of malignant disease in the bowel above it. Polyps are considered to be low grade malignancies by some observers, and to be definitely precancerous lesions by others. Adenomas are also believed to be precancerous lesions. Consequently, the lesions must be dealt with as growths which may become cancers in every sense of the word. Their destruction can

be easily accomplished by fulguration through the proctoscope. This is prophylaxis in cancer.

A roentgenological examination is rarely indicated in the diagnosis of cancer of the lower colon. The roentgenological examination may even produce conditions which jeopardize the life of the patient with a cancer of the lower bowel. This is true when a partially obstructive lesion is converted into a completely obstructing one by the introduction of contrast media into the bowel above the lesion. A roentgenological examination is contraindicated when the diagnosis of cancer can be established by other methods of examination. A roentgenological examination is indicated, however, when disease of the bowel cannot be demonstrated by any other method of examination. The double contrast method, wherein the bowel is filled with contrast media, then emptied of the media, followed by distention of the bowel by air, is worthy of mention as an adjuvant in demonstrating lesions of the colon by roentgen-ray examination—it has revealed tumors not demonstrated by ordinary roentgenological examination.

TREATMENT

With few exceptions the treatment for cancer of the rectum, or elsewhere in the large bowel, is radical excision. The best chances for cure are obtained by operations which strive for the complete removal of all the cancer bearing tissues. The most important exceptions to the employment of radical procedures for the removal of cancer of the rectum are the poor condition of the patient which precludes an extensive operation, and the operability of the disease as determined by metastasis.

There are many methods of removing cancers of the rectum. One needs only to consult the publications of Rankin, Dixon, Lahey, Horsley, Jones, and many others for the various techniques which can be applied to the surgical treatment of cancer of the rectum.

When surgical removal of malignant lesions of the rectum is not feasible, and when the patient who has a lesion of the rectum refuses radical operation, two other methods of treatment may be employed. First, radiation therapy may be used. Second, the lesion may be treated by fulguration, with or without the added effect of radiation therapy. Good results have been obtained by the use of both of these methods. Life may be lengthened and made more bearable by the employment of palliative procedures when radical surgery is not applicable.

SUMMARY

The incidence of inoperable cancer of the rectum is too high. It can be reduced by the continued efforts of all agencies in urging people with bowel complaints to consult their physicians without delay, and by a careful examination by the physician. The methods of diagnosing cancer and precancerous lesions of the rectum have been discussed, and the types of treatment for these lesions have been mentioned.

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DISCUSSION

DR. LINWOOD D. KEYSER: Several points in Dr. Sibley's excellent essay are worthy of comment and some elaboration. First and foremost is the fact that such a large proportion of rectal cancers are inoperable when seen by the proctologist or surgeon. This is not always the fault of the patient as he may have no symptoms which might cause him to consult a physician until he notices bleeding, the lower abdominal distress which accompanies partial obstruction, or the varieties of indefinite pain which Dr. Sibley has mentioned. Moynihan states "Cancer of the rectum is the most silent of all forms of growth. In patients of more than average intelligence and quick to observe any departure from health, I have found inoperable cancer of the rectum after a very few weeks of onset of symptoms." Indeed, when signs or symptoms do appear the lesion is already inoperable in most cases and lymphatic spread with distant metastasis has taken place. Only palliative colostomy remains to enable the patient to live a longer or shorter period of invalidism.

This is in rather sharp contrast to cancer of the cecum and right colon, where the disease has a propensity of declaring itself much earlier by means of fever, chills, a profound anemia, and the fairly early development of a palpable mass.

How, then, can we make the diagnosis of rectal cancer at an earlier date? The employment of proctoscope and barium enema can hardly be undertaken routinely in such a procedure as the annual health examination. However, digital examination can and should be routinely carried out in all adults in the course of a health examination. The consistency of the prostate should also be noted. In females inspection of the cervix should also be routine. Suspicious lesions should be investigated intensively by proctoscopy, biopsy and X-ray. Beyond these measures, continued preaching to physician and layman that rectal bleeding, charge in bowel habits and pain call for immediate surgical examination, are in order. Ultimately an intelligent and educated laity will bring the patient to us earlier.

The examination for rectal bleeding may be commented on. Blood from the right colon is usually dark

or tarry unless bleeding is profuse. Blood from the rectum or left colon is red. Hemorrhoids, especially bleeding hemorrhoids, frequently accompany rectal cancer, and for this reason the mere presence of hemorrhoids does not preclude malignancy. Many a cancer of the rectum has been diagnosed after a hemorrhoidectomy. Usually it is then inoperable. For this reason we make it a practice to proctoscope all cases of rectal bleeding and in many instances have X-ray of the colon before hemorrhoidectomy is done.

With regard to rectal examination, we must differentiate several pathologic factors, viz., rectal stricture, lymphopathia venereum, constriction or ulceration due to chronic ulcerative colitis, rectal polyposis or adenomatosis, or true neoplasia. Diverticulitis of the sigmoid will rarely cause direct narrowing of the rectal lumen but peri-rectal inflammatory reaction may present a low lying mass which can be confusing.

The strictures are important. Syphilis and tuberculosis are of disputed frequency. Chronic ulcerative colitis may produce rectal stricture which on proctoscopy bleeds easily and may require biopsy to differentiate from neoplasia. I have two patients at the present time whose rectal strictures are prominent features of long standing ulcerative colitis. The Frei test for lymphopathia venereum is indicated at times as the biopsy is not entirely characteristic in differentiating other types of inflammatory disease.

Biopsy is important as it establishes the diagnosis and is of value in prognosis by determining the type and grade of cancer.

The pathologic classification of rectal cancer includes polyps, adenomas, epithelioma, adenocarcinoma and colloid adenocarcinoma. (Lantern slides of microphotographs illustrative of these lesions were shown.) These tumors are relatively radioresistant, this accounting for the highly unsatisfactory results when irradiation therapy is used alone.

The lymphatic spread of rectal cancer is rapid and open gateways to the liver and other distant points are available. This makes early operation with extensive removal of mesenteric and pelvic glands as well as the lymphatics draining downward toward the sphincter all important. For this reason the Kraske, Rehn and other so-called dorsal operations have given way to the more extensive abdomino-perineal operations in which the distal recto-sigmoid, rectum and anus with as large an amount of mesenteric and pelvic glands as can be reached, are removed.

The operative mortality depends on the age, obesity, general health and resistance of the individual on the one hand, and on the grade of malignancy and local invasion of the neoplasm on the other. On the whole, in properly selected cases the mortality has been reduced now to 10 per cent. The ultimate mortality from recurrence runs around 29 per cent.

DR. CHARLES H. PETERSON: Dr. Sibley has discussed the points relating to roentgen-ray examination of the large bowel. It is true that small lesions can be overlooked by over distention of the bowel with barium. The information which can be obtained by roentgen-ray study of the large bowel over-shadows the objections that can be raised to it and it is felt that this examination should be used in every case. This is particularly true if the proctoscopic examination has been negative. It is felt that a rectal, a proctoscopic and a roentgen-ray examination should be made on every suspected case. A correlation of the information thus obtained should be more helpful than depending on either of the other examinations. I feel that cross-fire deep therapy treatments are a definite aid in the management of inoperable cases. These should be given in addition to the local implantation of radium or any surgical treatment which is indicated. Many far advanced cases will respond to roentgen-ray therapy, the response depending on the type of the malignancy. We know that a heavy saturation dose can be applied to any given area in the pelvis and we should not fail to use this valuable agent in our far advanced cases.

THE DEVELOPMENT OF HELPFUL MENTAL HABITS IN EARLY CHILDHOOD.*

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Just as a healthy body is dependent on healthy physical habits, so is a healthy mind dependent on healthy mental habits. The first portion of that statement raises no issue and no one of you would dare contradict it or even question it or doubt it. Yet the latter part will probably cause amazement. Such a situation is more or less natural for the early adoption of healthy physical habits becomes a part of one's daily life and they have become familiar to all of us, and in a measure can be enumerated by lay people as well as by physicians. On the other hand we are not so familiar with mental habits and do not understand them so well, nor can many of us enumerate them as they occur in our daily experi-

*Read by invitation to the Parent-Teachers Association of Albert Hill School, Richmond, Va., on September 21, 1938.

ences. In spite of the fact that they are as much a part of us as our physical habits, our attention has not been called to them in the same concrete way, and we have not adopted the practice, therefore, of selecting the wholesome ones and leaving off the unwholesome ones. Again this situation is not hard to understand. The practice of scientific mental hygiene has not reached the same stage of perfection as physical hygiene. In recent years, however, we have turned our thoughts to preventive mental medicine and have succeeded in working up a degree of interest in it. Our technique has been somewhat bad, however, and our accomplishments, therefore, not what we would desire. An example of what I am trying to describe is my position today. I have been asked to talk to you on helpful mental habits, but naturally I cannot go into detail in the description of these habits and their effects on our lives in the short time allotted me. Such attempts on our part have brought upon us the criticism that we deal too much in generalities and are not specific in our treatment of the subject. This condition must prevail so long as we attempt to handle the problem as we are doing. I would prefer seeing a series of well-planned talks on the subject, undertaken according to a systematic arrangement. Such a scheme, however, does not fit into your program, nor does time permit one individual to make such an arrangement. Our Mental Hygiene Society, I hope, will work out a scheme by which these things can be brought to you in an understandable way. This difficulty, however, does not deter us in taking every opportunity to present even some helpful thought on the conservation of mental health. And though I do not hope to discuss the entire subject with you, I hope I can, at least, emphasize one or two things that you may already know.

Healthy habits must be established upon a basis of the function of any organ involved in that habit. For example, our present care of teeth has been an evolutionary process over a period of many years, founded upon the knowledge of experts upon the function of the teeth and the adjoining soft tissues. Likewise, any system of healthy mental habits must be based upon knowledge of the functions of the mind. You can readily understand that we cannot go into a lengthy consideration of such a subject at this time. But it has not required any technical knowledge on your part of the teeth's functions for you to follow your dentist's instructions in caring for your teeth or your child's teeth. Through practice and years of experience on the part of the dentist an oral hygiene program has been formulated and his instructions are accepted by you without question. In similar fashion we must accept a program of dealing with mental habits.

In speaking of the functions of the mind, I am going to ask you to consider instinct and emotions as a part of the mind just as much so as the intellect.

Without further discussion let's consider behavior, including speech, as the physical expression of thinking. Therefore, to understand behavior, we must understand the motivating influences of behavior. We know instinct furnishes the dynamic behavior impulse, and emotion the feeling tone accompanying that impulse, while intellect governs our judgment. If behavior is instinctive, then we should not consider it either bad or good in a moral sense but as natural, and acceptable or unacceptable according to the standards of the community. The instinctive urges resulting in behavior then leads one to conduct himself either acceptably or in unacceptable fashion. This statement indicates a possible conflict between instinctive urges and cultural standards to which we are asked to conform. There must be some mental adjustment necessary in such circumstances. At times a subject is able to repress his desires and conform, while at other times a lack of repression permits unacceptable behavior. Confronting every day problems bring into play these adjustments. The conflict between child and parent arouses the necessity for this adjustment. The requirements for such a procedure in the solution of our daily emotional problems, perhaps, afford the individual the greatest opportunity for the adoption of healthy or unhealthy mental habits. Are such problems solved satisfactorily? What is the effect on the individual? What are criteria for judging the individual solution? In answering these questions the welfare of the child is too often considered in terms of parental convenience.

One cannot always follow his instinctive urges and at the same time behave according to acceptable standards. This necessity for adjustment arises within the lives of each of us numerous times each day. To conform to social conventionality we must bring into play many of the functions of the mind spoken of above.

When an urge to do something arises within us, we may either follow that urge or may repress it be-

cause of cultural demands. This repressed idea may be successfully handled by our subconscious mind or may remain as a potential trouble maker in the production of unacceptable behavior. The immediate barrier to the innate urge may have arisen anywhere in the individual's environment—in the parental attitude, in school room convention, or in companion relationships. We must always bear in mind that a child gains impressions from every single contact he makes, and these impressions wield a powerful influence in shaping his reactions, and in the development of his personality.

Now suppose in thwarting the constitutional impulse he has not made a successful adjustment, what may happen? Surely if the individual has handled the situation in a constructive way to his own satisfaction, and in furtherance of his happiness, he has taken a stand toward the development of an integrated personality. Thus he brings into play numerous other mental mechanisms and thereby forms wholesome mental habits. But, on the other hand, the repressions that are made necessary many times each day may not be satisfying to the individual and may lead to the adoption of unwholesome mental habits. If it were possible to isolate such instances, we might say that this is the beginning of the development of mental habits. Now, as stated above, one's reactions are colored by one's personality make-up, and by environmental influences. Thus in one individual continued repressions might cause progressive shyness, timidity, and unsociable behavior, ultimately leading to a loss of self-confidence and to the formation of an inferiority complex. Another might develop the habit of using the mental process known as compensation to overcome his discontent at the same series of repressions. Such an individual might become too aggressive and too active until his behavior becomes obnoxious, or develop into a so-called nervous, fidgety child. Still another might make use of a mental mechanism known as sublimation and turn his attention in another direction. Such a procedure might be useful if not carried to extreme degrees and cause abnormal behavior. Another mental mechanism often made use of is called projection. Individuals who adopt this method of solving their problems project their failures to some other person and blame others for their shortcomings. Thus, teachers are blamed for a lack of progress in school, play-mates are accused of destructive tendencies, or of leading Johnnie astray. At times this method of evading a problem may seem to work well, but as a habit it ultimately leads to more serious trouble.

In a similar way we might trace the development of those unwholesome mental habits that lead to truancy, lying and stealing. The braggart, the jealous child, the argumentative individual, and the cry-baby variety develop their individual unwholesome tendencies by forming habits that are to them satisfying though destructive. Temper tantrums are manifestations of behavior due to unhealthy mental habits that become established early in an attempt to solve problems as they arise.

The foregoing is an attempt to show that behavior patterns are developed through the utilization of the frequent repetition of related mental habits whether they be helpful or harmful.

If the individual does not adopt some such habit in the solution of his problems, the conflict may be aroused later in life to become the cause of a neurosis or a frank mental disorder. Many other examples of mental habits might be cited, but I hope these few will illustrate how mental habits are formed and that these habits may be good or bad, just as physical habits may be good or bad.

We must remember the child is constantly reacting emotionally to experiences in his environment either at home, in the school room, on the street, or while at play. These emotional responses are either satisfying or unsatisfying, constructive or destructive. The satisfying and constructive responses lead to a progressive development of an integrated personality in preparation for a fruitful adulthood. On the other hand, the unsatisfying and destructive reactions, the result of bad mental habits, lead to unhappiness and maladjustments, or even more serious conditions. Our interest, then, should be not so much as to what type of behavior a child has adopted, but why the behavior is as it is, or what mental habits have led to such behavior. By observation and understanding a child's reactions, this can be determined just as it can be determined what the physical habits are.

So much for the development of harmful mental habits. How can they be prevented and helpful habits established instead? I have dwelt at some length upon harmful mental habits because I believe one of the first steps toward the development of healthy mental habits on the part of the child is the prevention of unwholesome habits.

Before bad habits become fixed the child can be guided into the adoption of good habits. This does not mean that a parent or teacher must force upon the child ritualistic conformity patterned for adults. The child's daily life should afford expression for his own peculiar personality guided and directed in wholesome channels. The child's growing personality is determined by his daily contacts and by his reaction to these situations.

The formation of helpful mental habits insures the development of a growing maturity and a constructive outlook. Children are imitators, and as a rule they learn from others how to develop healthy habits. Many emotional problems are met in their early life each day, and they should meet these problems in such a way as to form the basis of a constructive philosophy of life. Because of the great variation in the personality make-up and the environment of children, no general rule, of course, can be stated that will bring about desirable reactions in each child in solving his daily problems. But those in close contact with the child can offer helpful suggestions from time to time, just as suggestions are offered in their play activities. A satisfactory outlet for his emotions can be offered, and his contacts and relationships can be guided without robbing him of his initiative, but at the same time opening before him wider fields of mental activity.

The first step toward the development of healthy mental habits in a child is the adoption by the parents of a constructive program for handling the child. The plan must be firm, straight-forward, consistent in its formulations, direct in its dealing with the child, and must be adhered to at all times. Any habitual faltering on the part of the parents leads to a diminution of the purpose of the plan and allows an opening for the child to deal inconsistently with his problems. Such a plan must be formulated with a knowledge of the child's mental and physical potentialities and must be carried out to foster the welfare of the child, rather than to promote the ambition of the parents. Too often a child is pushed into a maladjustment by ambitious parents who try to promote him faster than his natural equipment warrants, or who try to fit him for a life work satisfactory only to them. Bad mental habits leading to indifference, idleness and waste of time, and a life of poor social adjustment result many times from such a scheme. Over-protection must be avoided. The circumstances of living, and the dangers encountered daily naturally make us solicitous and apprehensive about our small children, but these feelings may cause us to rob our child of the opportunity for the development of self-confidence and self-reliance. Once in the habit of taking a child to school, it becomes difficult to stop for fear he might get hurt, or might learn to fight. To develop these qualities he must be afforded the opportunity for play, and for group activities, so that he might satisfy his cravings, develop his abilities and his own interests, and overcome his tendencies for adventure. Reading habits should be encouraged. Suitable material can be selected by the child with a little help in the earliest years without any attempt to force him to read what appeals to us. His daily problems should be discussed, with parent on the child's level, and from his point of view, and not from the parent's. In this way his reactions can be studied and help afforded along those particular lines where indicated. Threats, chagrin, humiliation, attempts to shame, bribes, and fear lead to unwholesome reactions. Encouragement and a sympathetic understanding of the child's viewpoint are tools with which great good can be gained toward the development of a wholesome personality. This attitude on the part of parents, teachers and others entrusted with the care and welfare of the child will help promote mental health which should be the privilege accorded every child.

In conclusion, let me emphasize that behavior patterns result from mental habits; that prevention of harmful habits is one of the best means of insuring helpful habits; that a firm constructive plan in dealing with the child, offering help in meeting his daily situations in a constructive way is productive of helpful mental habits and the future happiness of our children. When this idea of a mental health program is adopted by those entrusted with the care of children, we will, I believe, see a tendency toward a greater degree of conservation of mental health, and a trend toward the reduction of mental sickness. We are responsible for the mental habits of our children and in fulfillment of our obligations to them we must give our time and our thoughts to the consideration of the preservation of their mental health as well as to their physical welfare.

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WHAT MESSAGE SHOULD THE SPECIALIST CARRY TO THE FAMILY PHYSICIAN IN REGARD TO THE TREATMENT OF ARTHRITIS.*

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The writer has been interested in the disease of arthritis for twenty-one years. During the years 1917 and 1918 he was the assistant of Doctors E. H. Bradford and Robert Soutter, of Boston. The latter had a large arthritic practice and seemed to be highly successful in the treatment of this disease, for his patients got better and many arthritics were sent to him from far and near by other orthopædic surgeons. Dr. Soutter treated his patients with common sense, and the writer's own background is built up largely from this standpoint. However, he was impressed with the feeling that while the cases improved both as to deformities and activity of the disease in the hand of this brilliant physician and surgeon, yet many of the cases persisted in having at least some residue and were forced to accept the conclusion that they might have to consider themselves as arthritics indefinitely.

With this in mind, the writer, when he got on his own, followed the principles of the man whom he admired so very greatly, but he has always been restless and unhappy in regard to the matter, mainly because of two reasons. In the first place, the arthritic patient is, generally speaking, badly treated in the long run, either because the average physician considers the condition unworthy of exhaustive treatment in the beginning, or considers it hopeless when well developed, or, having given much time and care to laying out thorough, careful treatment at the beginning, the physician loses interest because of the long-drawn-out chronicity and allows the patient to take the treatment more or less in his own hands, with an end result of continuation of the disease and increasing deformity.

In the second place, the writer has been unhappy because many of those who are qualified to write on arthritis have been somewhat pessimistic in their attitude toward newer remedies, with the result that the family physician accepts the fact in his own mind that nothing new is of benefit to the arthritic patient. So much is he of this opinion that he will be very slow in accepting any new method of treatment, even though a very successful one should be developed, unless those of us who are greatly interested in this disease start a campaign of optimism to prepare the mind of the family physician to accept the possibility that sooner or later a real solution of this problem may be reached, and that, while he should look upon new remedies with conservatism, yet he should at least investigate the new remedies as they arise. In this way he will be quicker to make available to his hundreds of patients the treatment which will come out of the solution of the problem when it is solved.

The attitude of the family physician is molded to a great extent by the men who read papers at the smaller medical societies. The writer is a member of nine of these societies and is a member of the staff of several hospitals. In this way he hears a number of papers on arthritis, and for the most part these papers are so alike that they could have been copied from each other. The papers usually consist of a long discussion of the differential diagnosis between the atrophic and hypertrophic arthritis, with a brief statement that little is known in regard to the etiological factors of these two types. Then there usually follows an enumeration of the procedures of treatment which are to be found in any standard text-book, and the article is concluded almost invariably with a pessimistic admonition that, having laid out the said treatment, all has been done that can be done, and the family physician is sent home with no more information and certainly no more stimulation than he had before. These family physicians devote their lives to their patients. They live with them and suffer their complaints with them. They work untold hours and are called upon to treat every disease known to man. It is, therefore, too much to ask that they dissect a mass of literature on all subjects, when specialists, who work a shorter number of hours, have difficulity in keeping up with the literature in one subject. It seems to the writer, therefore, that a spirit of optimism—even though this be conservative—should be developed in the family physician, so that he will approach articles

*Read at a meeting of the Florida Medical Center, Venice, Fla., January 24, 1939, and the Southside Virginia Medical Association, September 12, 1939.

This article deals especially with the use of sulfur.

upon arthritis written by men delving into this field, with the hope that some day he will be rewarded with a procedure which he can add to his armamentarium to his patient's benefit.

In 1931 the writer started his investigation of the use of sulfur in the treatment of arthritis. His monograph was published in 1935, and the deductions which he drew from the clinical observations (with a reasonable amount of laboratory research) of the result of the treatment of arthritis with sulfur are summarized as follows:

1. An explanation of part of the problem of arthritis may lie in the study of sulfur.

2. The intravenous and the intragluteal administration of colloidal sulfur is practically without reaction.

3. The study of fifty cases of arthritis (twenty-five of the hypertrophic type and twenty-five of the proliferative type) treated with colloidal sulfur (intravenous and intragluteal) seemed to indicate:

a. An apparent improvement in the subjective symptoms and objective signs.

b. An increase in the cystine content of the finger nails.

c. The possibility of some degree of stabilization of the blood calcium.

d. A small decrease in the blood sugar.

e. An average slight rise in the metabolic rate, with most improvement in those cases with low metabolic rates.

f. A fall in the sedimentation rate.

g. An increased appearance of indican in the urine.

h. No significant effect upon the red blood cells.

i. A slight fall in the white blood count.

j. A slight fall in the hemoglobin.

k. A fall in the blood pressure.

l. A fall in the pulse pressure.

m. A tendency to weight reduction.

n. No marked temperature changes.

o. An X-ray indication of no progress of the disease.

4. The study of 341 cases of arthritis (hypertrophic and proliferative) showed an average rise of 1.62 per cent in the cystine content of the finger nails following treatment with colloidal sulfur.

5. The study of 892 cases of arthritis (hypertrophic and proliferative) indicated that improvement in the subjective symptoms and objective signs may be expected following treatment with colloidal sulfur.

It is believed that the first colloidal sulfur was prepared in 1888, but it was not until 1917 that emphasis was put upon this material. Since that time articles have been written upon the use of sulfur in the treatment of arthritis in increasing numbers, so that the Council of Pharmacy and Chemistry of the American Medical Association deemed the matter sufficiently important to make an investigation of sulfur preparations in order to ascertain the advisability of the acceptance of some form of sulfur for the treatment of arthritis. The Council, in a preliminary statement, made clear the importance of the treatment of arthritis, for it states: "Today chronic arthritis and related conditions cause more frequent, intense and lasting pain than any other disease of humanity. Formerly the despair of physicians, it is now studied intensively in clinics at New York, Chicago, Philadelphia, Boston, Rochester, New Haven, Cleveland, St. Louis, Ann Arbor, San Francisco, Tucson and elsewhere, and progress is being made in the treatment of this condition. A recent survey made in Massachusetts indicates that there are more than 3,600,000 sufferers from chronic rheumatism in the United States, but that the prevalence varies widely in different regions.

"In spite of the enormous number of sufferers from arthritis and its economical importance, there are few conditions which present so many medical problems and concerning which there is such a diversity of opinion, especially with reference to therapeutic measures."

However, the opinion was expressed by the Council that it should accept no form of sulfur for the treatment of arthritis until there is satisfactory evidence of its usefulness. The Council pointed out that satisfactory evidence required consideration of the following factors:

1. The use of sulfur, with sufficient control and follow-up periods of observation, to rule out so-called spontaneous remission.

2. The determination of the types of cases in which it may be used with a fair expectation of benefit.

3. The determination of the chief contraindication.

4. The determination of the optimum dosage.

5. The determination of the best form in which sulfur is to be used, whether as food rich in sulfur,

as ordinary sulfur, administered orally, or as colloidal sulfur, for intramuscular or intravenous injections.

The writer has reviewed all the articles referred to by the Council on Pharmacy and Chemistry, and has been in accord with the ideas expressed by the Council, for many years. It was for this reason that he engaged a full-time biochemist, in 1935, all of whose time should be devoted to the scientific investigation of the factors concerning arthritis. As a result, in the three years which have elapsed since that time an article covering the biochemical investigation of arthritis, the preliminary report on uric acid, glutathione and sulfur in the blood and sulfur in the urine has been written and was published in detail in the February number of the *American Journal of Surgery,* from which article the following is quoted:

"This paper is intended as the first report of a long series of investigations being conducted by the authors in the hope of establishing some biochemical evidence of the relationship of sulfur metabolism with arthritis.

"One of the authors (Wheeldon) reported previously his success with injectable sulfur preparations as one phase in the treatment of arthritis. Other reports have appeared in the literature substantiating this claim. Its beneficial effects continue to be noted by one of the authors, and as reported recently, appear to be enhanced and supported when the preparation is administered in conjunction with an adrenal cortex preparation. As previously reported by one of the writers in an earlier paper, it is not to be assumed that only sulfur therapy is used by him in any given case. The matter of diet, improvement in body mechanics, removal of foci of infection, etc., is carried out in all cases. An observation made by Grüneberg while using adrenal cortex therapy in the treatment of psoriasis is interesting in this connection and lends support to the writers' views. This author views psoriasis as in many cases due in part to an adrenal deficiency syndrome. The excellent results which he had obtained using adrenal cortex therapy have since been confirmed by Kissmeyer (quoted by Grüneberg). Grüneberg states that the most remarkable effects have been secured in the treatment of psoriasis arthropatica, noting also in most cases complete recovery of the joint symptoms.

"These observations become particularly interesting when account is taken of the work of certain French, German and Italian investigators, who have attempted to demonstrate the rôle of the adrenal cortex as a regulator of sulfur and glutathione metabolism. The reports are somewhat scattered and difficult of evaluation, and as yet no theoretical review of the whole field has appeared in the literature. Consequently, only a brief summary of the claims will be made here:

"Several workers have reported a high sulfur content (percentage) for the adrenals, particularly the cortex. Others have reported a high glutathione value (percentage). Adrenalectomy (even unilateral) and Addison's disease are said to produce a high blood sulfur, particularly of the neutral fraction (reference has usually been made to the serum), and a low blood glutathione.

"Administration of the adrenal cortex in normal animals produces the opposite effects: a low serum sulfur; and a high blood glutathione.

"The suprarenal vein is reported to contain considerably less serum sulfur than the artery, thus suggesting a thiopexic function for the adrenals. On the other hand, glutathione concentration in the suprarenal vein exceeds that in the artery. Experimentally, the adrenal glands appear to have pronounced powers of synthesizing glutathione. Following adrenalectomy, a lowering of glutathione in the muscles and organs has been demonstrated. Injections of sulfur and sulfur-containing compounds increase the sulfur content of the adrenals. This was noted to an even greater extent using sulfur salve. The cartilage of old animals is reported to show a low sulfur content. Low and unchanged glutathione blood values have been reported in arthritics. A low neutral sulfur of joint cartilage together with high total blood sulfur values is claimed in cases of arthritis. A rise in blood glutathione out of all proportion to the amount of sulfur administered follows its introduction into animals.

"The majority of the above reports were unknown to the authors when the present biochemical investigation was begun, but their discovery has served only to speed plans to uncover a suggested relationship between arthritis, adrenals, sulfur metabolism and possibly glutathione metabolism.

"A new sulfur preparation is being used in the present investigation. The authors feel that the more

accurate standardization of this preparation and the higher degree of colloidal dispersion, together with the clinical effects noted, make this preparation preferable to those previously used.

"The mechanism by which the sulfur preparations exert their action is a matter of speculation. One of the authors has suggested that the underlying cause in arthritis is a general sulfur deficiency, and that by some mechanism sulfur preparations aid in building up the sulfur reserve. The sulfur content of the finger nails has been used as an index of the general sulfur level in the body. It is extremely doubtful that the sulfur administered affects this level in a direct way, since the total amount of sulfur employed is very small in comparison with the total sulfur content of the human body. It is far more likely that its effect is a catalytic stimulation of the sulfur metabolism within the body, or that it in some way increases the absorption of the sulfur of normal nutrition. If its effects are due entirely to colloidal properties, some other element might serve the same purpose equally well. That the actual sulfur nature of the preparations is of importance would seem suggested on the basis of the possible tie-up between the adrenal cortex, sulfur metabolism and arthritis.

"Sullivan explained the therapeutic value of sulfur on the basis of a detoxification process, the sulfur administered sparing the natural sulfur reserves of the body, which were otherwise drained in combating the arthritic condition.

"As a possible explanation of the mechanism of the sulfur action, the writers must mention the recent work of Hans Selye on the 'alarm reaction,' a specific physiologic reaction of the organism to various injurious agents, such as drugs, toxic preparations, excessive muscular exercise, surgical injuries, etc. The reaction involves many at least of the symptoms of adrenal cortex deficiency, with adrenal enlargement perhaps the most characteristic feature. The reaction represents a defense mechanism. In time, the animal becomes adapted to the injurious agent, if the damage has not been too severe. Very possibly colloidal sulfur elicits the same response, and the adrenal hypertrophy may be the direct mechanism for counteracting the arthritic condition.

"Földes noted a conspicuous enlargement of the adrenals resulting from the continued administration of sulfur salves. At the same time the sulfur content of the adrenal showed seven fold absolute increase and a 100 per cent increase in sulfur concentration.

"Monaghan and Garai looked upon their sulfur preparation as an active germicide, capable of sterilizing the blood and controlling bacteremias.

"In presenting a preliminary report of the biochemical results thus far obtained, the authors are fully cognizant of the many variables involved, of the difficulties of attempting to present an accurate analysis of clinical changes as related to biochemical values, and of the limited significance of the results. Nevertheless, it was felt that they might prove of interest both to biochemist and physician.

"The standardization of the conditions of the experiment have thus far proved very difficult and, as developed, far from ideal. Many of the subjects were out of town patients, some receiving their sulfur injections from other doctors. The cooperation of the arthritic patient in many cases was hardly all that could be desired.

"The cases were selected because of the pronounced state of the arthritis, and though some had received previous treatment, at the time of the initial work-up the arthritic condition was sufficiently marked to warrant inclusion in the series. The great majority of the patients did not receive a second work-up during or following the period of treatment, so that our attention must be directed in this report mainly toward the biochemical make-up of the arthritic and not to the effects produced by the treatment employed. The conclusions drawn from this portion of the work are:

"1. No abnormal variations in the average reduced blood glutathione value of seventy-four arthritic patinets could be ascertained.

"2. A slightly higher average reduced blood glutathione value was found in the case of females as compared with males.

"3. No essential age variations in the glutathione values were revealed.

"4. A series of thirty-four arthritic patients showed an average reduction in the urine sulfate sulfur excretions.

"5. These same patients showed average neutral sulfur and a serial sulfur value which were essentially normal.

"6. Seventy-two arthritics showed normal blood uric acid values.

"7. The average of blood inorganic sulfate values

of twenty-five arthritic patients, determined by the method of Luttenof and Rheinhold appeared to be normal.

"8. Normal values for total sulfur and total sulfates of the blood, determined by a new method, are presented."

It is the hope of the writer that sound investigation of arthritis through the basic sciences will establish in the mind of the family physician that fundamental work is being done upon the problem. It is hoped that he can be given a hopefulness for the future because men especially interested in this disease are hopeful enough to continue their investigations. Most physicians will follow with enthusiasm the research being carried out at the various centers, provided it is reported in a manner to show that the workers themselves have such confidence that the problem will be solved that they are continuing the research enthusiastically.

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TRACHOMA AND THE MEDICAL INSPECTION OF ALIENS.

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The studies on trachoma recently completed in the United States under the auspices of the Commonwealth Fund of New York accentuate the relations of this affection to public health and medical inspection, suggesting new ideas whose bearing upon sanitary legislation and regulations is by no means negligible.

As related to trachoma, American medical inspection refers to domestic conditions concerning isolation, prophylaxis and treatment and is also vitally connected with the acceptance or rejection of aliens intending to enter the United States.

Up to a certain point, and from the practical view, the American medical inspection of trachoma has dealt heretofore mainly with well-defined cases, commonly accompanied by more or less scarring. The recognition of typical cases, presenting the deformities and visual impairment characteristic of advanced stages of the disease, is not difficult, but may be of no great practical importance, because such cases may have long since ceased to be actively infective. So far as school inspection and general considerations concerning public health refer to trachoma only as it is encountered within the territory of the United States, the factors concerned in its isolation and observation have only the importance which attaches to their application in any of the various diseased conditions whose extension must be limited by law. These factors appear in a different light when applied to the relations of immigration, for here the problem of diagnosis has already become considerably more acute and serious than it is when taken in connection with domestic trachoma. At home, diagnostic difficulties and errors may produce inconvenience which is relatively slight and easily corrected; abroad, on the contrary, they may be fraught with troublesome difficulties and may raise very material questions.

The new American studies on the etiology are particularly suggestive because they emphasize the practical difficulties and complexity of early diagnosis and bring out the importance of the incubation period, which assumes special significance when illuminated from the viewpoint, formerly inexistent, created by modern progress in social necessities, travel and sanitation, going hand in hand with improvements in science and technique. The present paper is designed more especially to consider the diagnostic relations of trachoma to the inspection of alien immigrants, together with factors referring to the incubation period. The newer view of these conditions involves certain practical consequences.

Diagnosis. Publications appearing in various countries since 1930 prove with increasing clearness that merely clinical diagnosis is quite insufficient in early and actively infective cases. Characteristic effects of trachoma occurring at its inception cannot be demonstrated dependably by inspection of the conjunctiva and other parts of the eye, even when it is facilitated by eversion of the upper eyelid. Even with use of the best modern methods, the findings may not permit conclusive diagnosis in very early stages of trachoma. By conclusive diagnosis in this connection is meant diagnosis affirming or excluding trachoma (and especially excluding it) soundly enough not to be controverted by medical examiners

occupied with immigrant inspection within the territory of the United States.

As thus understood, diagnosis depends upon the clinical signs and the biomicroscopical appearances.

Clinical Conditions. These refer to Stage I (Trachoma I) of the four stages described by MacCallan. This stage is "characterized by the presence of diminutive follicles alone, which are semi-transparent and to the unaided eye avascular, or present with a generalized subepithelial infiltration which gives the conjunctiva a red velvety appearance"[1]. Compare with this technical description the definition of trachoma upon which medical examiners must at present depend for official purposes: "Paragraph 67. Medical officers shall certify as trachoma any cases wherein the conjunctiva presents firm, well-marked granulations which do not have a tendency to disappear when the case is placed under hygienic surroundings and do not rapidly yield to ordinary treatment within a few days, even though there be no evidence of active inflammation at the time of the examination, nor appreciable discharge, nor yet signs of degenerative processes other than cicatricial formation."[3] Comparison of these two diagnostic statements clearly indicates that very early trachoma may readily escape merely clinical detection and also shows that non-trachomatous conditions may not improbably be considered trachomatous and result in the exclusion of an immigrant from the United States.

Biomicroscopical Findings. Examination of early-stage trachoma with low power shows a nearly normal conjunctiva, colored scarcely darker pink than normal and of aspect which is by no means velvety. Higher magnification shows increased vascular formation in the conjunctiva, the larger vessels remaining almost without change, while a thoroughly developed capillary network has been formed. Under oblique and narrowly-directed illumination can be seen *"capillary festoons, arising from fine, subepithelial vessels and extending perpendicularly to their plane, visibly spread out in the epithelial plane parallel to that of the mucosa. Trachomatous follicles* first appear as pale circular spaces, which are sometimes numerous. They are larger, more numerous and less transparent than normal lymphatic follicles. Again, it is an important fact that *they are always more or less enclosed by small blood vessels,* the space thus representing a granulation being generally situated between the two branches of a vascular bifurcation or in the axil of a fine capillary branch, between the latter and the parent vessel."[2]

It thus appears evident that exact diagnosis of first-stage trachoma is scarcely possible without biomicroscopy. This point and the general diagnostic difficulties of this period are well emphasized by the following citations:

1. "Apparently tiny capillaries are present in the transparent cornea at an early stage and they escape examination by the naked eye. The biomicroscope reveals a delicate infiltration surrounding the capillaries and somewhat in advance of them."[1]

2. "The comparative assurance with which diagnosis is made in the more clinically advanced stages of trachoma, when cicatricial changes take place, is preceded by considerable uncertainty in the early forms of the disease due to the similarity of trachoma to other ocular conditions."[1]

3. "Epithelial cell inclusions are never found in folliculosis (follicular conjunctivitis), so that their presence should indicate either a mixed condition or an entirely different disease."[1]

4. "It is nevertheless clear that a number of ophthalmological conditions may simulate trachoma because of their clinical resemblance to it, and in addition may even be accompanied by the presence of inclusion bodies."[1]

5. "The question of the diagnosis of trachoma arises, in fact, only during the first stages of the disease, but here it is unquestionably difficult, the difficulty being, it must be admitted, often unsurmountable."[2]

6. "Practically normal lymphatic follicles appearing in the upper region of the tarsus must not be confused with granular follicles. The distinction is, in fact, sometimes extremely difficult."[2]

7. "As embarrassing, and perhaps even more so, are certain cases of follicular conjunctivitis. . . . While the classic form may be readily diagnosticated, incompletely developed cases are very difficult to distinguish from incipient trachoma." A striking case of this kind was published by Morax (*Revue du Trachome,* 1924). "In such cases, the most able clinical skill may fail and the physician should, in such cases, be very cautious, both affirmatively and negatively."[2]

8. "Follicular conjunctivitis associated with chronic suppurative dacryocystitis may sometimes suggest trachoma, and we have more than once been obliged to correct previous diagnosis, especially with children affected with congenital dacryocystitis."[2]

9. "The diagnosis of vernal, vegetative or spring conjunctivitis is difficult only when this condition is associated with trachoma."[2]

Incubation Period. The incubation period of trachoma, usually ranging from some seven to ten days, may vary considerably "from a few days to almost a month."[1] This period was first shown in connection with the inoculation from a case of trachoma into two hospital attendants, performed by Wernecke in 1823. In these two inoculations, the first signs of trachoma appeared in one case nine days, and in the other fourteen days, following inoculation. The longest incubation period reported up to 1937 appears to have been one of twenty-seven days (1, Table II, and bibliography, I 21).

As long as diagnosis was considered satisfactory when made clinically, and until regulations governing the entrance of aliens into the United States assumed the strictness which they now possess, the incubation period had but small practical interest for medical inspectors. The increased importance of accurate diagnosis and the significance of the incubation period of trachoma to public health, to governmental authorities, to medical examiners, to transportation agencies and to aliens themselves are suggested by a reading of the subjoined extracts, taken from the immigration rules and regulations of January 1, 1930, as amended up to and including December 31, 1936, trachoma being listed among "loathsome or dangerous contagious diseases"[3]:

"Page 9. Section 9 as amended by Sec. 26 of the Immigration Act of 1924. That it shall be unlawful for any person, including any transportation company other than railway lines entering the United States from foreign contiguous territory, or the owner, master, agent, or consignee of any vessel to bring to the United States either from a foreign country or any insular possession of the United States any alien afflicted with . . . a loathsome or dangerous contagious disease, and if it shall appear to the satisfaction of the Secretary of Labor that any alien so brought to the United States was afflicted with any of the said diseases or disabilities at the time of foreign embarkation, and that the existence of such disease or disability might have been detected by means of a competent medical examination at such time, such person or transportation company, or the master, agent, owner, or consignee of any such vessel shall pay to the collector of customs of the customs district in which the port of arrival is located the sum of $1,000, and in addition a sum equal to that paid by such alien for his transportation from the initial point of departure, indicated by his ticket, to the port of arrival for each and every violation of the provisions of this section. . . . And no vessel shall be granted clearance papers pending the determination of the question of the liability to the payment of such fines, or while the fines remain unpaid, nor shall such fines be remitted or refunded: *Provided,* that clearance may be granted prior to the determination of such questions upon the deposit of a sum sufficient to cover such fines or of a bond with sufficient surety to secure the payment thereof, approved by the collector of customs. . . ."

"Page 181. Whenever the medical examiner certifies that an arriving alien is afflicted with any of the diseases or disabilities mentioned in section 9 of the act of February 5, 1917, as amended by the Immigration Act of 1924, the vessel or transportation agency shall pay to the collector of customs (under notice of intention to fine) $1,000 for each of said aliens and in addition a sum equal to that paid by said alien for his transportation from the initial point of departure, indicated in his ticket, to the port of arrival."[4]

The facts presented above show the difficulties which may attend the diagnosis of trachoma. They also show that diagnosis which may be negative if made during the incubation period or at a very early stage of the disease may not not hold good ten to perhaps thirty days or more later, provided early signs which may then exist can be diagnosticated by adequate modern technique. It is therefore clear that a case of trachoma originating more or less remotely from the United States may be still within the period of incubation when reaching the port of embarkation or when ready to embark or that its stage of development at this time may be yet too early to permit positive diagnosis under any circumstances.

The ensuing consequences are not devoid of practical importance, which may not fully appear until the affected alien arrives at the American port of entry, for here he may be rejected, may be deported and returned to "the initial point of departure" and the maritime agency of transportation may be penalized as provided in the regulations quoted above. Under the conditions described the assessment of the penalties involved may be unjust to the steamship line concerned and may tend to reflect upon the capacity and diligence of the medical examiner, whose

negative report may fail to be substantiated and concurred in at the American port of entry.

The considerations thus presented are based upon an experience in Paris of some twelve years, concerned with the medical examination of aliens applying for consular visas or for transportation to the United States by various steamship companies. The points here brought out have been developed by the observation, made especially for the detection of trachoma along with other diseased conditions, of aliens arriving in Paris en route to the United States from regions where trachoma is endemic. The conditions surrounding medical examinations in Paris, made for the purposes in question, are probably very similar to those existing at other places from which aliens depart directly for the United States.

In the course of this experience with trachoma, a case passed by the writer as negative for trachoma was refused entry at New York and the transportation company was obliged to discharge the penalties mentioned in the governmental regulations. Later verification proved impossible because the supposedly affected alien eluded observation, disappeared and therefore could not be returned to Europe and the initial point of departure. This case proved very suggestive in stressing the importance of exact diagnosis and in emphasizing the significance of the incubation period.

In another case, coming from Palestine and suspicious on account of well-marked signs present in the upper eyelid and upper half of the eyeball, complete laboratory examinations were made by the staff of the eye service of the Lariboisière Hospital at Paris. The results showed conclusively that the case was one of vernal conjunctivitis. Since the evidence was convincing, this case was accepted for transportation by the line concerned and was enabled to avoid possible confusion at New York.

Confirmation by expert authority has been required in a number of cases. The valuable assistance kindly accorded the writer by the ophthalmological service at the Lariboisière Hospital and by individual ophthalmologists is most gratefully acknowledged.

Trachoma is frequently observed at the large municipal hospitals of Paris, but most of the cases are old, present scarring and other sequelae and may not be infective. Early-stage cases are seen but rarely. In a large measure the Paris cases originate among native inhabitants of various regions situated in Northern Africa.

CONCLUSIONS

1. Clinical diagnosis of trachoma is not always sufficient, especially in cases presenting the earlier stages of the disease.

2. Diagnosis should be aided by the best modern technique, including biomicroscopy. It is conceded that expert opinion is often utilized at ports of entry and that, at least at some of these ports, opinion may be supported by laboratory methods. Such may or may not be the case at various foreign points of embarkation, where extra expense may be associated with special consultations and diagnosis.

3. When diagnosis is made at ports of entry, due allowance should be made, in case it is positive, for the relations of early infection and the incubation period, in order that agencies of transportation may not be unjustly penalized and that inconvenience to the alien may be reduced to a minimum.

4. It is fully recognized that practical difficulties, unavoidable at present, may prevent ideal handling of doubtful cases of trachoma at American ports of entry, as well as at foreign points. In view of the present status of diagnostic methods, however, positive diagnosis made at ports of entry should be as well supported as possible and considerable latitude should be allowed in diagnostic statements and in considering diagnosis already stated.

5. The recent work done in the United States emphasizes the necessity for fully familiarizing health officers and medical examiners with the conditions essential for correct diagnosis.

6. While the points thus brought out suggest the importance of caution and reserve in diagnosticating trachoma at ports of entry, they also show that medical examiners located at foreign points should observe particular care and secure every possible aid when making diagnosis in doubtful cases of the disease. When such special precautions are observed and permit negative diagnosis, the latter should be accompanied by a statement of the special consultations or methods employed, for presentation to the medical authorities located at the domestic port of entry.

LITERATURE

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2. Cuénod, A., and Nataf, R.: Le trachome. Masson & Cie, Paris. 1930.

3. United States Public Health Service. Regulations governing the medical examination of aliens. 1930.
4. United States Department of Labor. Immigration rules and regulations of January 1, 1930, as amended up to and including December 31, 1936.

10 bis rue Herran.

A LUER SYRINGE SPRING FOR USE IN VENIPUNCTURE.

K. D. GRAVES, M.D.,
Roanoke, Virginia.

In using a syringe for drawing blood, it is frequently inconvenient to insert the needle and then change hands to pull out the plunger, as is customarily done; particularly in puncturing a small vein, the needle often goes through the vein before the operator realizes it has entered it.

Fig. 1.—Spring placed on plunger, and plunger pushed into barrel of syringe.

A spring has been devised to overcome this difficulty. It consists of a spiral stainless steel spring to fit the plunger of a Luer glass syringe. After placing the spring on the syringe plunger, all the air is expelled from the syringe, and the needle is inserted under the skin (Fig. 1). The plunger is then released, creating a vacuum in the syringe (Fig. 2). When the needle enters the vein, blood immediately begins to flow into the syringe, without the necessity of pulling on the plunger.

These springs can be obtained in sizes suitable for a 5 cc. and a 10 cc. syringe from the Price Filler Machine & Manufacturing Co., Roanoke, Va.

Fig. 2.—After needle is inserted under skin, plunger is released. Springs to fit 5 cc. and 10 cc. syringes, respectively, are shown in foreground.

The advantages of this spring are:

1. Its simplicity and economy.

2. It can be used on any Luer glass syringe of appropriate size.

3. It will frequently enable one to puncture a small vein when this would otherwise be impossible.

Proceedings of the Medical Society of Virginia

MINUTES OF THE SEVENTIETH ANNUAL SESSION OF THE MEDICAL SOCIETY OF VIRGINIA

October 3, 4, 5, 1939

Richmond, Virginia

SCIENTIFIC SESSIONS

General Session

Wednesday Morning, October 4

The Medical Society of Virginia convened for its first general session at ten o'clock A. M. on Wednesday, October 4, 1939, in the auditorium of the John Marshall Hotel, Richmond, and was called to order by Dr. Roshier W. Miller, General Chairman of the Committee on Arrangements. Dr. Miller then introduced Dr. Karl S. Blackwell, President of the Richmond Academy of Medicine, who presided during the first part of the meeting.

The invocation was said by the Reverend Churchill Gibson, D. D., Rector of St. James Episcopal Church, Richmond.

Addresses of welcome were made by the Honorable J. Fulmer Bright, Mayor of Richmond, the Honorable James H. Price, Governor of Virginia, and Dr. W. T. Sanger, President of the Medical College of Virginia.

Mayor Bright, in a delightful address of welcome, urged the out-of-town members of the Society to take time while in Richmond to visit the many places of interest and of historical value in the city.

Governor Price, in his address, spoke of the advances that have been made in providing for the care of tuberculous persons, defective children, the insane, etc., stating that the only great need at present is for additional accommodations at the Piedmont Sanatorium (for Negroes), where more buildings are necessary. He also expressed his thanks and the thanks of the people of Virginia for the cooperation of the medical profession in the betterment of health conditions.

Dr. Sanger spoke of the extensive building program being carried on at the Medical College of Virginia and offered the facilities of the College for the meetings of any county or regional medical society. He said that its medical library is one of the best in the country and that, through its extension service, any physician may borrow books free of charge. He also called attention to the many scientific meetings being held in Richmond.

Dr. Blackwell introduced the President of the Society, Dr. Alexander F. Robertson, Jr., of Staunton, who then read his president's address entitled "The Changing Era in Medical Economics."

While the members stood in silence, Dr. J. Bolling Jones, of Petersburg, a member of the Committee on Membership, read the names of physicians deceased within the past year.

Members of the Society Whose Deaths Have Been Reported Since 1938 Meeting

Dr. William Stone Blakiston, Arlington, September 29, 1938.

Dr. Edward Chambers Laird, Greensboro, N. C., August 22, 1938.

Dr. Wilson Reynolds Cushing, Dublin, October 6, 1938.

Dr. John Webb Simmons, Martinsville, October 12, 1938.

Dr. Japheth Edward Rawls, Suffolk, October 14, 1938.

Dr. William A. Kearney, Prospect, October 17, 1938.

Dr. Holland Harvey Green, Hillsboro, October 18, 1938.

Dr. Norman Walter File, Lynchburg, November 4, 1938.

Dr. John Henry Neff, Charlottesville, November 8, 1938.

Dr. Hunter Boyd Spencer, Lynchburg, November 12, 1938.

Dr. George Oliver Emerson, Danville, R.F.D., November 21, 1938.

Dr. Lewis Gravely Pedigo, Salem, November 21, 1938.

Dr. Walter Carlton Rosser, Lynchburg, November 24, 1938.

Dr. James Thomas Strickland, Roanoke, November 25, 1938.

Dr. Jesse N. Clore, Madison, December 1, 1938.

Dr. John Emmet Early, Charlottesville, December 12, 1938.

Dr. Beverly Randolph Kennon, Norfolk, December 27, 1938.

Dr. Eugene Y. Willis, Culpeper, January 5, 1939.

Dr. Alexander Augustus Sizer, Schuyler, January 10, 1939.

Dr. Margaret Packer Forcee Kuyk, Richmond, January 16, 1939.

Dr. James Blaine Muncy, Pennington Gap, January 20, 1939.

Dr. Lyle F. Hansbrough, Front Royal, January 22, 1939.

Dr. Joseph Thompson McKinney, Roanoke, February 3, 1939.

Dr. William Edgar Fahrney, Broadway, February 16, 1939.

Dr. James Carroll Flippin, Charlottesville, February 16, 1939.

Dr. Garland Lightfoot Morriss, Blackstone, February 24, 1939.

Dr. John Alsop Pilcher, Jr., Roanoke, March 7, 1939.

Rear Admiral George Tucker Smith, Charlottesville, March 18, 1939.

Dr. Pitt Edward Tucker, Buckingham, April 28, 1939.

Dr. Bittle Cornelius Keister, Washington, D. C., May 3, 1939.

Dr. J. M. Dougherty, Jr., Gate City, May 4, 1939.

Dr. Millard Percy Doyle, Norfolk, May 8, 1939.
Dr. Jeffrey Neese Elder, Hopewell, May 11, 1939.
Dr. Adam George White, Lynchburg, June 3, 1939.
Dr. Peter Prentiss Causey, Courtland, June 5, 1939.
Dr. James Kennedy Corss, Newport News, June 6, 1939.
Dr. Henry Holmes Hunter, Whaleyville, June 17, 1939.
Dr. John Lewis Harvey, Simpsons, June 27, 1939.
Dr. Reuben William Bennett, Gretna, July 13, 1939.
Dr. Hiram Kilgore McConnell, Gate City, July 14, 1939.
Dr. James Beverly DeShazo, Ridgeway, July 31, 1939.
Dr. James Edward Rudasill, Hume, August 2, 1939.
Dr. Lawrence Taylor Price, Richmond, August 15, 1939.
Dr. John Lewis Rawls, Suffolk, September 5, 1939.
Dr. Walter Jones Adams, Norfolk, September 16, 1939.
Dr. John McKendree Bailey, Hopewell, September 22, 1939.

President Robertson introduced Mrs. Rollo K. Packard, of Chicago, President of the Woman's Auxiliary to the American Medical Association, and Mrs. Willis Kelly West, of Oklahoma City, President of the Woman's Auxiliary to the Southern Medical Association, both of whom gave a few words of greeting.

Dr. Franklin M. Hanger, Associate Professor of Medicince, Columbia University, New York City (invited guest), was introduced by the President and addressed the Society on the subject of "Jaundice".

President Robertson then introduced Dr. Eugene M. Landis, Professor of Internal Medicine, University of Virginia, Charlottesville, who spoke on "Edema".

The program having been completed, the morning session adjourned.

Medical Section
Wednesday Afternoon, October 4

The Medical Section of the Society held its meeting on Wednesday afternoon, October 4, in the Monroe Room (later adjourning to the auditorium) of the John Marshall Hotel and was called to order at 2:30 o'clock by Dr. Robertson, the President.

Dr. W. O. Bailey, of Leesburg, read his paper entitled "Pyrus Malus, Belonging to the Suborder of Pomaciae, of the Natural Order Rosaceae". This was discussed by Drs. Wm. R. Pretlow, Warrenton; F. D. Wilson, Norfolk; W. P. McDowell, Norfolk; M. B. Hiden, Warrenton; and F. C. Rinker, Norfolk; and by the essayist in closing.

Dr. E. E. Barksdale, Danville, read his paper on "Arsenical Exfoliative Dermatitis" (illustrated by lantern slides), which was discussed by Dr. Dudley C. Smith, University; Dr. C. T. Jones, Petersburg; Drs. Richard W. Fowlkes, Richmond, and F. D. Wilson, Norfolk; and by Dr. Barksdale in closing.

Dr. Walter P. Adams, of Norfolk, read his paper entitled "Early Myocardial Insufficiency", which was discussed by Drs. T. Dewey Davis and P. D. Camp, of Richmond. President Robertson extended the courtesies of the floor to Dr. Franklin M. Hanger, of New York City (an invited guest), and the paper was discussed by Dr. Hanger and, in closing, by Dr. Adams.

Dr. John R. Hamilton, Nassawadox, read his paper entitled "The Management of the Patient with Recurring 'Colds', Grippe, and Influenza", and this was discussed by Drs. T. Dewey Davis, of Richmond, and Franklin M. Hanger, of New York City, the discussion being closed by Dr. Hamilton.

Dr. Charles Phillips, Temple, Texas, read his paper entitled "Observations Based Upon the Study of 1,434 Skin Cancers" (illustrated by lantern slides), and this was discussed by Drs. Thomas W. Murrell, Richmond; Hilmar R. Schmidt, Petersburg; and Frank C. Apperly, Richmond. Dr. Phillips then spoke briefly in closing.

The program having been completed, the Medical Section then adjourned.

Surgical Section
Wednesday Afternoon, October 4

The Surgical Section of the Society was held in the Washington Room at Hotel John Marshall, Richmond, on Wednesday afternoon, October 4, and was called to order at 2:30 P. M., by Dr. P. W. Miles, of Danville, vice-president, who presided. Lantern slides were shown with papers and discussions.

The first paper was presented by Dr. Clayton W. Eley, of Norfolk, whose subject was "Roentgen Therapy of Certain Infections and Inflammations". This was discussed by Dr. Fred M. Hodges, Richmond; Dr. B. H. Nichols, Cleveland, Ohio; Dr. Donald M. Faulkner, Richmond, and Dr. M. H. Todd, Norfolk.

Dr. Philip W. Boyd, of Winchester, presented the next paper, entitled "The Use of the Cow-Horn Peg in Fractures of the Neck of the Femur". This was discussed by Dr. James T. Tucker, of Richmond, and by Dr. Boyd in closing.

A paper by Dr. J. M. Meredith, of the University of Virginia, on "The Incidence and Significance of Shock in Patients with Acute Head Injuries" was discussed by Dr. C. C. Coleman, Richmond; Dr. M. H. Todd Norfolk; Dr. R. L. Raiford, Franklin, and by Dr. Meredith, in closing.

The next paper on the program was presented by Dr. Claude Moore, of Washington, D. C., whose subject was "The Operability of Gastric Cancer". Discussion on this paper was opened by Dr. Linwood D. Keyser, Roanoke, who was followed by Dr. J. Shelton Horsley, Richmond; Dr. Porter P. Vinson, Richmond; Dr. Fred M. Hodges, Richmond, and Dr. Claude Moore.

Dr. R. L. Payne presented a paper prepared by himself and Dr. R. DuVal Jones, both of Norfolk, on "Esophageal Diverticula". Dr. I. A. Bigger, of Richmond, opened discussion on this paper and was followed by Dr. Porter P. Vinson, of Richmond, and Dr. Payne, in closing.

Adjournment followed.

General Sessions
Thursday Morning, October 5

The second general session of the Society was held in the auditorium of the John Marshall Hotel on Thursday

morning, October 5, being called to order by the President at 9:40 o'clock.

The first paper was that of Dr. Charles H. Peterson, of Roanoke, on "The Diagnosis and Treatment of Mediastinal Tumors", which was read by him. This was discussed by Dr. Clayton W. Eley, of Norfolk.

Dr. H. B. Mulholland, of University, presented his paper entitled "The Use of Protamine Zinc Insulin in the Treatment of Diabetes Mellitus" (illustrated by charts), which was discussed by Drs. John B. McKee, of Winchester, and Wm. R. Jordan, of Richmond, and in closing by the essayist.

The paper of Dr. Richard P. Bell, of Staunton, entitled "Experience with Thyroid Disease in Western Virginia", was read by him and was discussed by Dr. G. F. Simpson, Purcellville, and in closing by Dr. Bell.

A Clinical Pathological Conference was conducted by Dr. Louis Hamman, of Baltimore, Md. (invited guest), who was introduced by President Robertson. Two cases were discussed, the necropsy findings being reported by Dr. George Zur Williams and Dr. Paul Kimmelstiel, of Richmond.

The thanks of the Society were expressed to Dr. Hamman by the President, after which the morning session adjourned.

Thursday Afternoon Session

The closing general session of the Seventieth Annual Meeting of the Medical Society of Virginia was held in the auditorium of the John Marshall Hotel on Thursday, October 5, beginning at 2:30 P. M.

President Robertson called the meeting to order and introduced the first speaker, Dr. Mont Reid, of Cincinnati, Ohio (invited guest). Dr. Reid then read his paper entitled "The Cancer Problem", which was illustrated by lantern slides.

Dr. Robertson expressed the thanks of the Society to Dr. Reid and then called for the report of the House of Delegates, which was read by Miss Agnes V. Edwards, Executive Secretary-Treasurer.

The following telegram was read by the President:

"CHARLESTON, W. VA., OCT. 5,
2:15 P. M.

MISS AGNES V. EDWARDS, *Executive Secretary,*
MEDICAL SOCIETY OF VIRGINIA,
RICHMOND, VIRGINIA.

Will you please express to your members our great appreciation for the honor conferred on our State Association by your acceptance of our invitation to meet jointly with us at White Sulphur in 1940.

WEST VIRGINIA STATE MEDICAL ASSOCIATION,
JOE W. SAVAGE, *Executive Secretary.*"

PRESIDENT ROBERTSON: Upon completing my term of office as president of this Society, I wish to thank each member of the association, and especially the officers, the councilors, and the members of committees, for the help you have given me during the past year. Whatever of good has been accomplished has been due to their efforts.

I now come to the most pleasant part of my task. Dr. Trout, in handing you this gavel, you take over the leadership of this Society at a most critical time. With thankfulness I say that we have in you a leader endowed with that rare quality, common sense, which is go greatly needed in these days of vexatious problems and conflicting opinions. I pledge you my hearty cooperation, and I am sure you will receive loyal support from the members of the Society.

PRESIDENT H. H. TROUT: Fellow members, Alec impressed me. He reminded me of my experience with a colored barber in Staunton. He is not a good barber, but every time I go to him he looks at the back of my head and says: "Doctor, I do declare I believe you are growing some hair there." I know he is a liar, but I like to hear him.

I do thank you for this honor, the greatest honor that can come to a member of our profession, and I sincerely appreciate it. I can best show my appreciation, I think, by telling you what we are thinking of doing. It is needless, I trust, to tell you that I will give the work of the Society my best thought and my earnest effort. As I have studied our problem as a State Medical Society I have been convinced of one thing very markedly, and that is that there has been no continuity of policy. We have gone along and changed from year to year. For that reason I am very glad to follow a friend and to have a friend follow me—men with whom I can talk over our problems.

As I told you the other day, I had no idea of this thing in West Virginia; and, frankly, since we have decided to go there I am scared to death about it. The officers are not the ones who can put it over; you men will have to do it. Fortunately, it is only for one year. I can best express my feelings by telling you something that happened yesterday. A doctor came up to me and said: "Doctor, I am very much surprised at your election." I said: "I am, too, but why are you?" He said: "Because you have never been a member of the House of Delegates." I think he is correct in that; I think the the first time I ever attended a meeting of the House of Delegates was on Tuesday night of this meeting. Frankly, if I had known the tremendous amount of work they have to do I would have been more scared than I was. The amount of work they handle is tremendous. Those of us intimately connected with national and regional organizations have had our work handed to us and all we had to do was to preside. But in this organization it is a year-long job.

We decided it was best to accept the invitation of the West Virginia Medical Association and try this experiment of a joint meeting for one year. Within the next month Dr. Walter Martin, our President-Elect, and I, with the entire personnel of our Program Committee and Miss Edwards, hope to meet with a similar group from the West Virginia society and formulate plans. It may interest you to know that the Virginia crowd is going to get together and have a meeting to decide what the Virginia Society wants done before we meet with the West Virginians. They probably expect to get out-of-State speakers for all the sessions. Each section will probably suggest an outstanding man in that field, who will speak

to all the members of both societies. Then he will be the luncheon or dinner guest of the section. In that way we can get the best men in all the specialties. Personally, I think it will work for one year. After that I think we shall come back into Virginia inspired and shall have a chance during the next three or four years to digest what has taken place at the joint meeting. Possibly, after three or four years, we shall want to invite North Carolina or Maryland or West Virginia to meet with us in Virginia.

In passing, it is interesting to realize that the West Virginia Medical Association is older than the Medical Society of Virginia. That does not seem right and is not right. Dr. Clarence Porter Jones has called our attention to the fact that we should go back to 1821, instead of dating from the Civil War. Miss Edwards and Dr. Blanton are going to investigate that, and I think before we go to West Virginia we shall be older.

There are no more country doctors; we might as well face that fact. Good roads have eliminated them. One doctor came to me and said: "Doctor, I have been thinking of this nine dollars a day. I welcome the chance to spend only nine dollars a day. My wife has been with me here in Richmond, and she has been going around to the department stores." That nine dollars a day at White Sulphur Springs takes care of everything.

I believe at this time it is customary to announce the standing committee appointments, so I will just read those off.

STANDING COMMITTEES

(The number after each name indicates the length of term of office, as one member of each Standing Committee is named by the in-coming President for a term of three years, except in the case of the Department of Clinical and Medical Education, and the Medical Economics Committee.)

PUBLICATION AND PROGRAM: Dr. Wyndham B. Blanton (1), *chairman;* Dr. J. Edwin Wood (2); Dr. H. S. Daniel (3).

SCIENTIFIC EXHIBITS AND CLINICS: Dr. W. Ambrose McGee (2), *chairman;* Dr. W. R. Rogers (1); Dr. W. W. S. Butler (3).

DEPARTMENT OF CLINICAL AND MEDICAL EDUCATION: Dr. Alex. F. Robertson, Jr., *chairman;* Mr. George B. Zehmer, *executive secretary;* Dr. I. C. Riggin; Dr. Lee E. Sutton; Dr. H. B. Mulholland; Dr. J. W. Preston; Dr. E. L. Alexander.

LEGISLATION: Dr. J. Morrison Hutcheson (3), *chairman;* Dr. J. K. Hall (1); Dr. J. D. Willis (2).

MEDICAL ECONOMICS: Dr. John Hundley, Jr., (2) *chairman;* Dr. Guy Fisher (1); Dr. Carrington Williams (1); Dr. A. B. Hodges (2); Dr. H. A. Latane (3); Dr. James P. King (3).

MEMBERSHIP: Dr. Joseph A. White (1), *chairman;* Dr. J. Bolling Jones (3); Dr. D. M. Kipps (2).

ETHICS: Dr. W. D. Kendig (1), *chairman;* Dr. J. R. Gorman (2); Dr. R. L. Raiford (3).

In closing let me say to you that I am looking to every man in this room and all his friends to help us put over the meeting next year and make it successful. No matter what your personal views are, let's support the Society in this. We have to consider it from the standpoint of the general practitioner. I hope it is a good thing, and with your help it will be successful.

Is there any further business to come up? If not, the meeting is now adjourned.

Whereupon the Seventieth Annual Session of the Medical Society, at 3:45 P. M., adjourned *sine die.*

Special Committees of the Medical Society of Virginia.

At the time of taking office, the President of the Medical Society of Virginia names the Standing Committees, designating chairmen. In accordance with this ruling, these are included in the minutes of the Society. Since the meeting, Dr. Trout has completed the list of Special Committees, upon whom rest the responsibility for much of the most important business of the Society. Names of these follow:

ADVISORY BOARD TO WOMAN'S AUXILIARY

Dr. P. St. L. Moncure, *Chairman,* Norfolk.
Dr. James B. Stone, Richmond.
Dr. Hawes Campbell, Sr., Venter.

CHILD WELFARE

Dr. F. D. Wilson, *Chairman,* Norfolk.
Dr. James B. Stone, Richmond.
Dr. E. A. Harper, Lynchburg.
Dr. C. E. Conrad, Harrisonburg.
Dr. J. N. Williams, Richmond.
Dr. W. B. McIlwaine, Petersburg.
Dr. R. D. Bates, Newtown.
Dr. J. M. Bishop, Roanoke.
Dr. L. T. Royster, University

MATERNAL WELFARE

Dr. M. P. Rucker, *Chairman,* Richmond.
Dr. C. J. Andrews, Norfolk.
Dr. A. M. Groseclose, Roanoke.
Dr. T. J. Williams, University.
Dr. Claiborne Jones, Petersburg.
Dr. J. A. Owen, Turbeville.
Dr. E. B. Kilby, Toano.

WALTER REED COMMISSION

Dr. C. P. Jones, *Chairman,* Newport News.
Dr. J. D. Clements, Ordinary.
Dr. J. W. Smith, Hayes Store.

TO ARRANGE PROGRAM FOR HEALTH DIVISION OF VIRGINIA WELFARE CONFERENCE

Dr. Basil B. Jones, *Chairman,* Richmond.
Dr. C. F. Graham, Wytheville.
Dr. W. P. Jackson, Roanoke.
Dr. D. C. Wilson, University.
Dr. F. P. Fletcher, Richmond.

PNEUMONIA COMMISSION

Dr. Wyndham B. Blanton, *Chairman,* Richmond.
Dr. G. B. Lawson, Roanoke.
Dr. P. S. Smith, Abingdon.

Dr. H. B. Mulholland, University.
Dr. Harry Walker, Richmond.

TO CONFER WITH STATE BOARD OF NURSES' EXAMINERS
Dr. W. L. Peple, *Chairman,* Richmond.
Dr. J. T. Buxton, Newport News.
Dr. C. B. Morton, University.
Dr. Frank S. Johns, Richmond.
Dr. Elisha Barksdale, Lynchburg.

SYPHILIS CONTROL
Dr. Ennion S. Williams, *Chairman,* Richmond.
Dr. R. D. Kimbrough, Norfolk.
Dr. E. E. Barksdale, Danville.
Dr. D. C. Smith, University.

TUBERCULOSIS
Dr. E. C. Harper, *Chairman,* Richmond.
Dr. Dean B. Cole, Richmond.
Dr. F. B. Stafford, Sanatorium.

ADVISORY TO STATE DEPARTMENT OF HEALTH
Dr. Ernest Scott, *Chairman,* Lynchburg.
Dr. W. O. Bailey, Leesburg.
Dr. W. P. Gilmer, Clifton Forge.
Dr. C. H. Peterson, Roanoke.
Dr. P. Q. Daniel, Big Rock.
Dr. J. M. Lynch, Cape Charles.

CANCER
Dr. E. P. Lehman, *Chairman,* University.
Dr. I. C. Riggin, Richmond.
Dr. Fred Hodges, Richmond.
Dr. R. P. Bell, Staunton.
Dr. I. A. Bigger, Richmond.
Dr. R. L. Payne, Norfolk.
Dr. I. C. Harrison, Danville.

INDUSTRIAL HEALTH
Dr. F. J. Wampler, *Chairman,* Richmond.
Dr. H. T. Hawkins, Waynesboro.
Dr. C. B. Bowyer, Stonega.

REPRESENTATIVE TO VIRGINIA WELFARE COUNCIL
Dr. F. P. Fletcher, Richmond.

BUSINESS SESSIONS

Council

October 3, 1939

The annual meeting of the Council was held in the Hotel John Marshall, Richmond, October 3, at 4:00 P. M., with the president, Dr. Alexander F. Robertson, Jr., Staunton, presiding. Others in attendance were Dr. Hugh H. Trout, Roanoke, president-elect; Drs. Griffin W. Holland, Eastville; Julian L. Rawls, Norfolk; R. W. Miller, Richmond; C. E. Martin, Emporia; W. C. Akers, Stuart; John Hundley, Jr., Lynchburg; C. O. Dearmont, White Post; J. E. Knight, Warrenton, and C. B. Bowyer, Stonega, councilors; Dr. Wyndham B. Blanton, Richmond, editor of the VIRGINIA MEDICAL MONTHLY; Dr. I. C. Riggin, Richmond, State Health Commissioner; Mr. George B. Zehmer, executive secretary-treasurer of the Department of Clinical and Medical Education; and Miss Edwards, secretary—one hundred per cent attendance.

The report of the winter meeting was approved as published in the April, 1939, issue of the MONTHLY.

Dr. Miller was asked to report on the work of the committee appointed to look into the sale of the three volumes of Medicine in Virginia. He said the publisher of the first volume did not wish any settlement at this time, but, as a large amount is tied up in the second and third volumes, and the publisher of these has asked that the Society do something to promote sales on them, the committee felt something should be done and advised the payment of $700.0. They recommended that a committee be appointed to negotiate with the publishers. A new contract should be made before any money is paid. Dr. Blanton did not feel the Society was under any obligations to the publishers, but, if any arrangement is made, it should take care of the storage of the books. Dr. Robertson felt Drs. Miller and Blanton should be continued as a committee to work with the publishers and draw up a contract to present at the winter session. Dr. Rawls put this in the form of a motion which was seconded and carried. He stated he felt the first thing the Society should try to do is to get the books off their hands. It was suggested that notices of these books should be printed and used in all mail going out from the executive office.

The budget as prepared by Drs. Miller and Martin was then read and adopted for presentation to the House of Delegates. At the request of Dr. Blanton, Miss Edwards gave a statement as to receipts and disbursements of money received by the MONTHLY.

Dr. Miller said the Society had $1,500.00 from bonds which had matured on August 1 and this should be reinvested. His committee thought it best to invest this in "Baby Bonds", at least for the present. Dr. Hundley moved that the committee be authorized to invest the money as they see fit.

There were no reports from the individual councilors.

Miss Edwards reported that, following a request of the James River Medical Society for a charter, she had written the two councilors in whose districts the counties in this society were located and asked for their opinions. Nothing had been done about this and the Society was again applying for a charter. As Cumberland and Buckingham are in the Fourth District, Dr. Martin, of that District, moved that they be allowed to be chartered with Fluvanna as the James River Medical Society, as a more convenient organization for those doctors to attend. He said the members would be retained in the Fourth District Society as "associate" members and would receive programs, etc., but their representation in the House of Delegates would be through the James River Society. This motion was seconded and carried.

Dr. Robertson told of an invitation which had been extended from the West Virginia State Medical Association to hold a joint meeting with them in 1940. Upon request, he and Dr. Trout had met with a committee of West Virginia doctors and were much impressed with the earnestness of the men and their plan. The suggestion is to have a program consisting almost entirely of out-of-

State men of national reputation and to hold the meeting at White Sulphur Springs. The West Virginia group found that this type of meeting has increased their attendance of both specialists and general practitioners. Dr. Robertson felt the invitation was a compliment to the Medical Society of Virginia and would like to hear from others.

Dr. Trout said he went to the committee meeting definitely opposed to the idea but came away absolutely in favor of the meeting. For a long time he had been in favor of developing Virginia talent but had discovered the last couple of years that Virginia doctors don't want to read papers in Virginia.

Dr. Blanton, as chairman of the program committee, stated that his committee was unanimously in favor of this idea. He did not think the Society should give up its plan of individual meetings but should try out the idea of a joint meeting for at least one year.

It was stated that the West Virginia Association had taken care of the additional expense of invited guests by their commercial exhibits. August had been suggested as the month for the meeting because it was felt it would be easier to get speakers at this time.

Following a free discussion, it was moved that the Council has considered this question and they go on record as unanimously favoring the joint meeting for 1940.

Dr. Clarence Porter Jones had sent the following communication with regard to the charter of the Society:

SEPTEMBER 30, 1939.

DEAR DOCTOR TROUT:

Thinking that there is little likelihood of my being in Richmond, Tuesday next, I am submitting a matter to you which I had hoped to take before the Council, i.e., the origin of the Medical Society of Virginia.

I received the idea from a conversation with the late Dr. Craig, Secretary-Editor of the A.M.A. Dr. Craig felt that it was a shame that Virginia was not history conscious in matters medical. He said that a proper research would reveal that the Medical Society of Virginia was organized some fifty years prior to 1870; that prior to the Civil War, some six to ten years before and ofttimes after the close of said war, almost every scientific society in the country either held infrequent meetings or suspended operation for the time being; that when they resumed activity most all of the State Medical Societies kept on with the same charter, and it was a pity that Virginia did not do so, and there is no reason why it could not date its origin true to history and not count the reorganization in 1870 a beginning, when it was not a beginning.

This being such a fascinating idea, I undertook to make the research, and published my findings in the VIRGINIA MEDICAL MONTHLY, under the caption "Some Interesting Bits of Medical History," April, 1928, page 56.

The following facts are established:

1. The Medical Society of Virginia was organized in 1821.
2. An Act to Incorporate the Medical Society of Virginia passed the General Assembly, January 2, 1824.
3. An Act to Amend the Charter of the Medical Society of Virginia, passed the General Assembly, April 20, 1826.
4. The General Assembly re-enacted the law Incorporating the Medical Society of Virginia in 1851 (exact date not given).

The last meeting prior to the Civil War was held in Richmond in 1858. There seems to have been held no further meeting till 1870. These facts are substantiated by references given.

I hope you will take the necessary steps, if you think proper, looking to correcting this statement of history. The Medical Society of Virginia was reorganized in 1870, but was organized some fifty or more years prior to 1870.

I am submitting this to you for what you think it is worth.

CLARENCE PORTER JONES.

Dr. Rawls moved that Dr. Blanton be appointed with Miss Edwards to investigate this matter and report to the Council. If the date of 1821 for the charter can be claimed, this statement should be used as a foreword in the new Constitution and By-Laws. Seconded and carried.

There being no further business, the Council adjourned.

AGNES V. EDWARDS, *Secretary.*

House of Delegates
October 3, 1939

The House of Delegates was called to order by the President, Dr. A. F. Robertson, Jr., on October 3, at 7:30 P. M., the meeting being held at the Hotel John Marshall, Richmond. A quorum being present, the calling of the roll was dispensed with.

A committee from the West Virginia State Medical Association was present to extend an invitation for this Society to meet jointly with them in 1940. As they wished to catch an early train, Dr. Robertson granted them the privilege of the floor, before taking up routine business.

Dr. R. M. Bobbitt, President of the Association, stated that for a number of years some of the folks in West Virginia have been dreaming of a possible joint meeting between the Virginia and West Virginia State Medical Associations. They are all brothers under the skin and have many mutual friends. At the past meeting, a resolution was passed that the West Virginia Association invite the Virginia Association to meet with them next year. West Virginia had already selected White Sulphur Springs as their meeting place and this is an ideal spot for the two organizations. He could visualize a scientific meeting of greater proportions with less expense; a greater fellowship; inter-state golf tournaments; and a wonderful time with a lot of friends. As President, Dr. Bobbitt extended the invitation to the Medical Society of Virginia.

Dr. O. B. Bierne, chairman of the West Virginia Committee, read the report of a recent meeting of the West Virginia Committee with Drs. Robertson and Trout, outlining the plans for such a meeting. He stated there was no idea of making this an annual affair or of doing anything to lose the identity of the two organizations.

Dr. Walter E. Vest stated that he had been a member of the Medical Society of Virginia for thirty years, although he had for some time been living in West Virginia. He felt it is now time for all physicians of this country to stick together and to cultivate a closer relationship. He could not recall any time in which there has been a proposition to have a joint meeting of the two State societies and thought this would bring a large attendance from both West Virginia and Virginia. The West Virginia Association is made up in a large part of graduates

of Virginia medical schools—practically 30 per cent—and he felt there would be much in common at such a meeting.

Dr. Robertson said that they had in mind having a large number of out-of-State speakers. With the help of increased commercial exhibits, the cost would be small to the two societies.

Dr. Hugh Trout, president-elect, stated that the attendance from rural practitioners had almost doubled in West Virginia since they had been using almost altogether out-of-State speakers. North Carolina has done this for several years and they have found it has also increased their attendance.

Dr. W. B. Blanton, chairman, stated that the program committee was unanimous in the belief that the Society would do well to adopt this plan as an experiment at least.

Following these statements, Dr. Robertson thanked the visitors and said that the place of meeting would be considered at the usual time, when other invitations could be issued. He then called for reports.

The minutes of the last meeting, as published in the November, 1938, issue of the MONTHLY, were adopted.

The following budget, as approved by the Council, was presented by Dr. Miller and adopted:

BUDGET FOR YEAR

October 1, 1939—September 30, 1940

MEDICAL SOCIETY OF VIRGINIA	Proposed 1939-40	
Salaries	$2,730.00	
Rent and Telephone	365.00	
Stationery and Office Supplies	65.00	
Repairs and Replacements	45.00	
Postage	235.00	
Audit Fee	30.00	
Miscellaneous Expense	50.00	
Programs	80.00	
Badges	40.00	
Reporting Annual Meeting	175.00	
Social Security Tax	22.50	
President's Expense	100.00	
President-Elect's Expense	50.00	
Councilors' and Officers' Expenses	60.00	
Invited Guests' Expense	200.00	
Delegates to A. M. A.	150.00	
Scientific Exhibits and Clinics	200.00	
Dept. Clinical and Medical Edu.	1,200.00	
Medical Economics	75.00	
Legislation	25.00	
Walter Reed Commission	75.00	
Child Welfare	10.00	
Maternal Welfare	10.00	
Cancer	20.00	
		$6,012.50
VIRGINIA MEDICAL MONTHLY		
Salaries	2,730.00	
Preparation of Journal	6,500.00	
Office Rent and Telephone	365.00	
Stationery and Office Supplies	30.00	
Repairs and Replacements	45.00	
Office Postage	50.00	
Audit Fee	30.00	
Miscellaneous Expense	20.00	
Social Security Tax	22.50	
		$9,792.50
		$15,805.00

Consideration of reports of the various committees, which were published in the September, 1939, issue of the MONTHLY, was the next order of business

Delegates to the American Medical Association (pages 538-539)—Adopted.

Publication and Program (page 539)—Adopted.

Scientific Exhibits and Clinics (page 539).

Dr. R. W. Miller stated that the local committees in the cities in which the Society meets could take care of part of the expenses of this committee out of the money taken in from commercial exhibits. He thought they should all do this instead of putting back in the local treasuries any money in excess of their expenses. Dr. H. A. Tabb moved that any excess over the expenses incident to the meetings be turned back to the State Society to take care of the scientific exhibits. Seconded and carried. Report adopted.

Department of Clinical and Medical Education (pages 539-541)—Adopted.

Legislative Committee (page 541)—Adopted.

Medical Economics Committee (pages 542-545).

Dr. Martin, chairman, explained certain parts of this report, and it was adopted in sections and as a whole.

Membership Committee (page 545)—Adopted.

Dr. Wyndham Blanton moved "that the secretary convey to Dr. Joseph A. White, chairman of this Committee, the greetings of this organization, our regret that he is not with us tonight, and an expression of our continued admiration for him—a distinguished past president of the Medical Society of Virginia." This was passed by a rising vote.

It was stated that Dr. Ayer Whitley, of Fluvanna County, had been admitted to membership since this report had been made, as his county had not then been chartered.

Ethics Committee (pages 545-546).

In accordance with this report Dr. Kendig, chairman, read a letter from the Arlington County Medical Society and the reply from Dr. J. W. Preston, Secretary of the Medical Examining Board of Virginia. It was suggested that Dr. Preston be asked to explain this situation. Upon being given the privilege of the floor, he said this question of the Arlington County Society had arisen over

the licensing of a doctor who was a graduate of a school not rated as an "A" college by the American Medical Association. However, he had practiced in hospitals for five years prior to applying for his license and had met other requirements of the State Board.

Dr. W. L. Powell moved that the House of Delegates go on record as having all confidence in the ability and integrity of the State Board of Medical Examiners. Seconded and carried.

Dr. G. F. Simpson then moved that the report of the Ethics Committee be received and filed because he knew there was not a member of the Society present who felt the Board was lacking in any of its duties.

Dr. Powell Williams suggested that the words "which your committee does not recommend" be added to the end of Dr. Kendig's report, making the last paragraph read, "the only other way your Committee sees to remedy this condition would be amending the present Medical Practice Act by legislative enactment, which your Committee does not recommend." This was seconded and the report adopted.

Advisory Board to Woman's Auxiliary (page 546) —Adopted.

The annual report of the **Woman's Auxiliary** was then read as follows:

The Woman's Auxiliary to the Medical Society of Virginia begs to submit its annual report from October, 1938, to October, 1939.

We have eleven auxiliaries comprising twenty-eight counties. It is with deep regret that we cannot report any new organization, although our organization committee has worked faithfully with three prospects, hoping for organization. The main objectives outlined by our doctors and those the committees have formed with the approval of our advisory council have been carried out satisfactorily.

I will not state all of the activities of the local groups in detail as the work accomplished has followed closely the routine of former years, and listed in last year's report.

Our auxiliaries are working toward the relief of suffering, promoting health education, and assisting our doctors in solving the many confusing problems facing the profession today. For the success of our organization we wish the good will of all our doctors and to have every doctor's wife an enthusiastic member of some Auxiliary.

Now that our year's work is drawing to a close we are glad we have had the continued privilege of serving our doctors and that a better understanding has been developed between our organization and the medical profession.

We pledge to our Medical Society our heartiest cooperation and desire to serve it whenever we are needed.

Respectfully submitted,
ELLIE COCKE CAMPBELL.
(MRS. HAWES CAMPBELL).

Dr. Wright Clarkson, one of the delegates to the American Medical Association, arriving at this time, the President said he understood Dr. Clarkson wished to make a supplementary statement to their report and asked him to speak at this time.

Dr. Clarkson stated there is one thing paramount with organized medicine now and that is self-protection. Congress had before it at its last meeting a bill which the medical profession felt would be unjust. Some such legislation may go into effect at the next session. He did not know what is best to do but wondered if the Society could give a very good appropriation this year to the Medical Economics Committee. It is time to spend some money in that direction. The Society has a good committee and it has done mighty good work but they have had very little to work with. They should be given an appropriation to try in some way to forestall what is just around the corner. He did not believe most doctors want to be regimented into what they think is socialized medicine. The American Medical Association feels that something very radical may take place at the next Congress and the various State societies should in some way forestall this action by going very deeply into a consideration of it. He urged the Society to stand back of its Medical Economics Committee.

Child Welfare Committee (pages 546-549).

Dr. Wilson, chairman, stated that he wished to add the following as the last paragraph of his report:

The Committee wishes to express its hearty approval of the plans of the State Hospital Board for extending its work among colored epileptics and mental defectives at the Petersburg Colony.

The report was then adopted.

Committee on Revision of the Constitution and By-Laws (pages 557-558).

In accordance with the Constitution and By-Laws, this was presented so it might lay on the table until the next day.

A ten-minute recess was taken so that delegates from the various districts could elect members of the **Nominating Committee.** The following were named to bring in a report at the next meeting:

1—Dr. R. D. Bates, Newtown.
2—Dr. P. St. L. Moncure, Norfolk.
3—Dr. Karl Blackwell, Richmond.
4—Dr. W. D. Kendig, Kenbridge.
5—Dr. I. C. Harrison, Danville.
6—Dr. W. L. Powell, Roanoke.
7—Dr. Guy Fisher, Staunton.
8—Dr. O. K. Burnette, Culpeper.
9—Dr. G. B. Setzler, Pennington Gap.

Dr. Robertson asked Dr. I. C. Riggin, State Health Commissioner, if he had a report to make at this time. He expressed appreciation for the interest and cooperation the State Health Department has received from the medical profession during the last year, stating that the committee reports have covered some of these activities. In the budget recently submitted to the Governor, Dr. Riggin said very definite requests were made for funds to permit the extension of health service to each county within the State. This would necessitate an increase of about $82,000 of State funds for the first year and about $220,000 for the second year. Requests were made for appropriations for adequate inspection of sewage disposal, water supplies

and swimming pools of the State; a slight increase for extension of work in tuberculosis—increased number of beds at Piedmont Sanatorium—$125,000 for 100 additional beds; $40,000 for diphtheria immunization; $12,500 for smallpox immunization, there being 145,000 school children in this State who have not been vaccinated against smallpox; and $2,500 for continuing and furthering slightly the work in pneumonia control in order that the number of typing stations might be increased from thirty-one to fifty. Two or three years ago, the maternal welfare committee made a recommendation that prenatal clinics be established throughout the State. Until the health districts can be extended to cover the entire State, Dr. Riggin said this and similar services are bound to be limited. The venereal disease clinics cannot be extended until full-time health departments can be established. At the present time, there is being expended for venereal disease control about $125,000. Two years ago, this was about $15,000.

Dr. W. B. Blanton said that all members are proud of the health commissioner and the fact that he comes to talk over his problems, and offered the following resolutions, which were adopted:

WHEREAS, the State Health Commissioner, Dr. I. C. Riggin, has submitted budget estimates for the furtherance of public health service in the Commonwealth of Virginia for the biennium 1940-1942, the contemplated service including expansion of local health departments to cover every county within the Commonwealth, increase in the facilities for more adequate supervision of public water supplies, sewage disposal plants, swimming pools, etc., increased facilities for the prevention of tuberculosis, both through the out-Patient service and sanatoria, expansion of facilities for the treatment and care of crippled children, the prevention of diphtheria and smallpox through request of an appropriation of $52,500 for the purpose of furnishing diptheria toxoid and smallpox vaccine, an appropriation of $2,500 in order to continue cooperation with the diagnostic laboratories now approved as typing stations and to increase the number, and to furnish free serum to the indigent or serum at a reduced price, and realizing that the prevention and control of disease and the promotion of the health of the citizens of the Commonwealth depend upon the efficiency and adequacy of health service available, and desiring to cooperate in every way possible in the furtherance of the public health program in the Commonwealth,

THEREFORE, BE IT RESOLVED, that the House of Delegates of the Medical Society of Virginia go on record as approving and supporting the program of the State Department of Health, and,

FURTHERMORE, BE IT RESOLVED, that a copy of this Resolution be forwarded to the Governor of Virginia and the State Health Commissioner.

Materal Welfare Committee (page 549).

Dr. M. P. Rucker, chairman, stated that at a meeting held just prior to the House of Delegates, this committee decided to request the addition to their committee of two members who are general practitioners. He said that the maternal death rate has fallen to 5.3 but it can be bettered by the intensive study of each maternal death, and the committee wished to review in detail each maternal death on which they can get figures. The report was adopted.

Walter Reed Commission (page 549)—Adopted.

Committee to Arrange the Program for the Health Division of the Virginia Conference of Social Work (pages 549-550)—Adopted.

Pnuemonia Commission (pages 550-551).

Dr. Blanton, chairman, called attention to the fact that an increased appropriation had been included in the budget of the State Health Commissioner for the establishments of further typing stations.

The report was adopted.

Committee to Confer with State Board of Nurses' Examiners (page 551).

It was stated that a letter had been received from Miss McLeod, Secretary of the Virginia State Board of Nurses' Examiners expressing appreciation of the help of the Committee and trusting they might be continued. The report was adopted.

Committee cn Control of Syphilis (pages 551-555).

Dr. Williams, chairman, said he wished to call special attention to the Bill on Pre-Marital Examinations which is to be presented at the next General Assembly. The report was then adopted.

Tuberculosis Committee (pages 555-556).

Dr. G. F. Simpson was opposed to the recommendation that teachers have annual X-ray chest examinations because of the difference interpretation of X-ray plates. He told of two cases in his practice where these X-rays had been read as positive when all other tests were negative. As a result of these errors, one patient was unable to secure work as a teacher and the other had a severe mental reaction. Dr. P. St. L. Moncure moved that the report be adopted omitting this part (fourth recommendation). Seconded and carried.

Advisory Committee to State Department of Health (page 556)—Adopted.

Cancer Committee (page 558).

Dr. Lehman, chairman, presented the following supplementary report:

The State Cancer Committee met on October 3, 1939, in Richmond. Present were Dr. Harrison, Dr. Riggin, Dr. Bigger, Dr. Robertson, Dr. Trout, Dr. Hodges and Dr. Lehman.

The data submitted with requests for certification as cancer treatment centers from the four clinics below were reviewed:

McIntire Tumor Clinic, University Hospital, Charlottesville, Va.
Diagnostic Tumor Clinic, Norfolk, Va.
Tumor Clinic, Jeffeffrson Hospital, Roanoke, Va.
Tumor Clinic, Medical College of Virginia, Richmond, Va.

Inasmuch as the requirements published in the July, 1939, number of the VIRGINIA MEDICAL MONTHLY were met in each instance, it was moved, seconded and carried that these four clinics be certified with the proviso that no

general communications from such clinics to the public or profession be released without the approval of the director of the clinic.

IT WAS RESOLVED, That the State Cancer Committee recognize the valuable help of the State Department of Health and the State Health Commissioner in the field of cancer control in the State.

The report and supplement were adopted.

Committee on Industrial Health (pages 558-559)—Adopted.

Representative to Virginia Welfare Council (page 559)—Adopted.

Committee on Virginia State-Wide Safety Conference (pages 559-560)—Adopted.

The President called for new business, and Dr. W. L. Powell presented the following resolution, which was adopted:

WHEREAS, there has been definite improvement in the care of the mentally sick since the recent reorganization of the State Hospital Board;

THEREFORE, BE IT RESOLVED, that the members of the said Board be commended by the Medical Society of Virginia and a copy of this resolution be forwarded to the Governor of Virginia.

Dr. M. H. Todd told of a doctor in Princess Anne County who does illegal practice. They have been unable actually to convict him of anything, although it is known that he is not ethical in all his work. It is understood that he proposes to rent the top floor of a building and open a hospital of his own in which case he will be unrestricted in anything he does. The only way they can prevent him from doing this is to have a law that any doctor proposing to open a private hospital be required to have the approval of the local and/or State medical society.

Dr. Moncure stated that when this man applied for license to the State Board of Medical Examiners, his application was studied very closely and from a legal standpoint they could not turn him down. The local society will now have to prefer charges to the State Board. Although he does not have the backing of the Norfolk and Princess Anne doctors, he can go ahead and open up his own hospital. There will have to be definite evidence against him before his license can be revoked. If he does open up such a hospital, he can take patients in and do anything he pleases with them and then no one can get any evidence. This State should have a law that every hospital shall have the backing of the physicians in that community and such a law should start in this Society.

Dr. I. C. Harrison stated that if a man has a license to practice medicine in the State, nothing can be done unless there is definite evidence to show that he is doing criminal work. The State Board of Examiners can do nothing unless the man is proven guilty.

Dr. Julian Rawls suggested that a proposal be made to Legislature to create a commission so that any man or group of men establishing a place for the treatment of at least five persons should be passed on by this commission.

Dr. C. J. Andrews said the Maternal Welfare Committee felt that every hospital should have a license from the State. He, therefore, recommended that this be referred to the Legislative Committee to see that such a law be put into effect.

Dr. Riggin did not feel that the General Assembly would pass a bill giving authority to local men to pass on the establishment of a hospital. There is no law at the present time with regard to the opening of a hospital. The Department of Public Welfare is supposed to license or approve hospitals doing maternal welfare. There should be some legislation covering permits to operate hospitals, and Virginia is one of the few States in the United States not having such a law. This would necessitate a certain amount of inspection of hospitals. This question should be referred to your legislative committee for study and to present this to the Council who shall have authority to present legislation to the next General Assembly.

Dr. Todd moved that this matter be referred to the Legislative Committee as soon as possible and that they refer it to the Council for action at the next General Assembly. Seconded and carried.

Dr. Ernest Scott presented the following resolution:

BE IT RESOLVED, that the Medical Society of Virginia endorse the principle of prepayment sickness insurance of the low income group and authorize the optional establishment of local, county or district plans providing they are sanctioned and controlled by the local county or district societies and that patients are given free choice of physician and hospital.

Dr. W. B. Martin stated that this resolution proposes to do as an experiment what the Committee on Medical Economics recommended in its report. The Committee had endorsed it and he moved its adoption. Seconded and carried.

The House then adjourned to meet again the following morning at 8:30:

House of Delegates
October 4, 1939

The second meeting of the House of Delegates was held at 9:00 A. M., Wednesday, October 4, with Dr. Robertson presiding.

Roll call showed a quorum present.

The first order of business was the revision of the Constitution and By-Laws. In Article VI, Section 7, Dr. Moncure thought the president-elect should not preside in the case of disability of the president, as that was the duty of the vice-president, and this section should read: "The President-Elect shall automatically succeed to the presidency at the end of the term." This was put as a motion, seconded and carried.

The amendments to the By-Laws were then adopted.

The following communication from the Medical Society of New Jersey was then read:

MAY 5, 1939.

The Joint Committee on Professional Relations of the Medical Society of New Jersey and the New Jersey Pharmaceutical Association at a recent meeting passed the following resolution, which has been endorsed by the Medical Society of New Jersey and the New Jersey Pharmaceutical Association:

> RESOLVED, That the Joint Committee on Professional Relations request the Medical Society of New Jersey and the New Jersey Pharmaceutical Association to enter a formal protest against the prescribing of medicines and the giving of medical advice on the radio, with the exception of such broadcasts on health matters as are given under the auspices of recognized associations of licensed physicians or Federal, State, and Local Health Departments; and be it further
>
> RESOLVED, That such protest be sent to the broadcasting companies and the Federal Communications Commission.

The members of your organization have doubtless been moved to protest against the type of medical advice that is furnished over the radio in connection with patent medicine broadcasts. This type of promotion in behalf of self-medication is becoming more subtle and radio announcers are endeavoring to tie up their advertising message with some complimentary reference to the medical and pharmaceutical professions.

We believe the time has come for concerted action to curtail this type of activity, in behalf of the lay public which is unable to recognize the difference between correct medical advice and commercial propaganda, and we trust, therefore, that your organization may pass a resolution similar to the one noted above and send it to broadcasting companies and the Federal Communications Commission at Washington, D. C.

It will be of interest to us to learn of the action taken by your organization.

JOINT COMMITTEE ON PROFESSIONAL RELATIONS,
CHESTER I. ULMER, M. D. *Chairman.* PRESCOTT R. LOVELAND, *Secretary.*

It was moved that the Society go on record as opposing patent medicine advertising on the radio and that the secretary communicate this fact to the proper authorities. Carried.

A letter from the Federal Trade Commission was read as follows:

JULY 14, 1939.

In a recent conference with Dr. Olin West, a problem of mutual interest to the medical profession and the Federal Government was discussed. It is at the suggestion of Dr. West that I am writing you this letter.

At great hazard not infrequently involving costly and harassing suits for libel, the American Medical Association has for many years been conducting a valiant fight against nostrums and quackery. Through these means an invaluable service has been rendered to the profession as a whole, and to every individual member. Various aspects of this service should be obvious to any physician. The Association, however, is without regulatory powers. Through the pages of the Journal and otherwise it can expose falsehood and advise against it, but it lacks the authority to specify and enforce the limits beyond which the advertiser of a product may not go in representing to the public the merits of a proprietary preparation.

Fortunately, however, there is an agency clothed with this authority and charged with this responsibility. This is the Federal Trade Commission which has jurisdiction over false and misleading advertising. In this capacity the Federal Trade Commission is the medium through which the ambitions of the medical profession with respect to false advertising can be realized. It is believed, therefore, that the successful accomplishment of this objective should be of vital interest to every member of organized medicine. It is, however, a problem which will require the unreserved support of medical organizations and their constituent membership. Whenever a case is contested it is necessary to introduce competent medical testimony in support of the government's charges. You, as the Secretary of the State Medical Society, know the proper men to whom to appeal, within your State, for such assistance. Moreover, an appeal from you is much more direct and personal than such an appeal coming from me or from even the office of the American Medical Association in Chicago.

When hearings are necessary it is the policy of the Federal Trade Commission to schedule the hearing at or near the place where the headquarters of the respondent are located, so that little or no travel will be involved. I am in a position also to assure you that medical witnesses will be treated courteously and that every possible consideration will be given to the conservation of their valuable time, and to other items to suit their convenience. Though it is regretted that the Federal Trade Commission has not been provided with funds with which to pay expert witness fees, it is believed that this problem is of as much concern to the medical profession as it is to the Federal Government, and that physicians in performing this service are acting in the interest of themselves and the profession as a whole.

I will very much appreciate an expression from you as to whether or not you wish to cooperate with me in the manner indicated, if and when the demand for such assistance arises.

The recognition of the medical and public health significance of this problem is well illustrated by the fact that there has been recently created in the Federal Trade Commission a Medical Advisory Service to which I, as an officer of the Public Health Service, have been assigned as director.

K. E. MILLER, *Senior Surgeon,*
U. S. P. H. S.

It was stated that the Secretary of the American Medical Association had sent a letter of endorsement of the work of the Commission. Motion was made, seconded and carried that the Society comply with this request.

The place of meeting for 1940 was the next business. Dr. Julian Rawls moved that the Society accept the invitation to hold a joint meeting with the West Virginia State Medical Association. Dr. P. St. L. Moncure said that he understood that representatives from the Princess Anne County Society would extend an invitation for the Society to meet at the Cavalier Hotel at Virginia Beach and this had been endorsed by the Norfolk County Society. He felt the meetings of the Society should be held in Virginia. Dr. Rawls' motion was seconded. Dr. M. H. Todd extended an invitation from the Princess Anne County Medical Society to meet at Virginia Beach next year. It was stated that an invitation had also been received from the Hotel Chamberlin at Old Point Comfort.

The question being raised as to whether or not a quorum was present, the President announced that the House would adjourn to meet immediately after the morning session.

Adjourned Meeting

12:50 P. M.

The House resumed proceedings at 12:50 P. M.

The first question to be considered was Dr. Rawls' motion that the next annual meeting be at White Sulphur

Springs, W. Va. A vote was taken and the motion carried.

Dr. H. C. Henry, Director of the State Hospital Board, upon invitation, told the House of proposed legislation to be presented at the next General Assembly, relating to patients suffering from mental illness:

1. Making it unlawful to use any jail in the State as a place of detention for a patient committed as insane, epileptic, or feeble-minded and pending transfer to a State hospital, substituting therefore immediate hospitalization in the nearest State hospital or special wards or rooms in the Medical College of Virginia, University of Virginia hospitals and certain other general hospitals until nurse or attendant from the State hospital can arrive.
2. Provide for commitment for *Observation* for a period not exceeding thirty (30) days to State hospitals upon the certificate of one physician who shall be preferably the family physician.

Following Dr. Henry's statement, Dr. John Hundley offered a motion that the Society endorse these proposals. This was seconded.

Dr. Moncure said that in parts of the State, it is almost impossible to send such patients to a State hospital or to take care of them in any other way than in a jail hospital. Dr. C. J. Andrews said there is no hospital in Norfolk that will take these public charges and he wished to know who would take them in Richmond or the nearest hospital. After discussion, it was decided to act on the proposals separately, and the second one was endorsed.

In discussion of the first proposal, Dr. Simpson wanted to know what would be done with violently insane patients. In his section, the only place in which they can be cared for until commitment is in the jail. Dr. William Myer stated they had the same thing in Fairfax County, and have to send their patients to the District of Columbia. Dr. A. D. Hart suggested that financial arrangements would have to be made with these hospitals to care for such patients temporarily. Dr. Rawls thought it would be up to the State police to take the patient to a suitable place. Dr. Karl Blackwell advised caution in presenting this proposal before Legislature until there is uniformity of opinion in the profession. Dr. Carrington Williams said as these patients are wards of the State after they have been committed, wouldn't it be practical for the State police to transport them to the nearest hospital for the insane? Dr. Blackwell suggested that a committee be appointed to find out just what is being done all over the State and report back to the House. Seconded. Dr. Moncure felt this would be thrashed out in the Legislature, and all these points will be brought out. He believed a committee should be appointed from this Society to cooperate with Dr. Henry and his associates.

Dr. Blackwell moved that this matter be referred to the Legislative Committee to work out with Dr. Henry, they in turn to refer it to the Council at its next meeting. Seconded and carried.

The chairman of the Nominating Committee, Dr. Moncure, then presented the following slate, which was unanimously accepted:

President—Dr. Hugh H. Trout, Roanoke.
Presilent-Elect—Dr. Walter B. Martin, Norfolk.
Vice-Presidents—Dr. Karl S. Blackwell, Richmond.
Dr. Frank A. Farmer, Roanoke.
Dr. Phil W. Boyd, Winchester.
Secretary-Treasurer—Miss Agnes V. Edwards, Richmond.

Drs. Alexander F. Robertson and Walter B. Martin were elected as delegates to the American Medical Association, with Dr. Wright Clarkson, Petersburg, holding over, and Drs. Carrington Williams, Richmond, and Julian L. Rawls, Norfolk, as alternates, with Dr. R. W. Miller, Richmond, continuing for another year.

Councilors from the odd numbered districts elected at this time are:

1st—Dr. Griffin W. Holland, Eastville.
3rd—Dr. Roshier W. Miller, Richmond.
5th—Dr. W. C. Akers, Stuart.
7th—Dr. Alexander F. Robertson, Jr., Staunton.
9th—Dr. C. B. Bowyer, Stonega.

Drs. Julian L. Rawls, Norfolk, C. E. Martin, Emporia, John Hundley, Jr., Lynchburg, and J. E. Knight, Warren? ton, Councilors for the even numbered districts hold over for another year.

Dr. A. D. Hart presented a motion of thanks to the Richmond Academy of Medicine and their committee on arrangements for their splendid entertainment and excellent meeting.

There being no further business, the House adjourned.

AGNES V. EDWARDS, *Secretary.*

Auditor's Report—October 1, 1938, Through September 30, 1939

TO THE OFFICERS AND COUNCILORS,
MEDICAL SOCIETY OF VIRGINIA,
RICHMOND, VIRGINIA.

GENTLEMEN:

We have made an examination of the books of account of the Medical Society of Virginia, Richmond, Virginia, for the fiscal year ended September 30, 1939, and submit herewith our report, consisting of the following statements and related comments:

EXHIBITS

"A" Balance Sheet.
"B" Statement of Income and Expense.

Comments

The assets and liabilities of the Society at September 30, 1939, are shown in Exhibit "A". A summary thereof, compared with that at the close of the prior year, is given below:

	9-30-39	9-30-38	Increase Decrease*
ASSETS:			
Cash	$13,677.55	$ 9,422.78	$4,254.77
Accounts Receivable	1,825.81	1,801.48	24.33
Investment—Bonds (At Cost)	525.00	2,032.50	1,507.50*
TOTAL	$16,028.36	$13,256.76	$2,771.60

LIABILITIES:			
Accounts Payable	659.03	577.42	81.61
NET WORTH	$15,369.33	$12,679.34	$2,689.99

The Income and Expenses of the Society for the fiscal year ended September 30, 1939, are shown in detail in Exhibit "B", prepared on cash receipts and disbursements basis. The operations for both the current and prior years are shown in condensed form in the following tabulation:

	YEAR ENDED 9-30-39	9-30-38
INCOME:		
Medical Society	$ 5,333.66	$ 5,081.08
Medical Monthly Publication	12,011.92	11,392.61
TOTALS	$17,345.58	$16,473.69
EXPENSES:		
Medical Society	$ 5,112.67	$ 4,355.60
Medical Monthly Publication	9,489.39	9,336.92
TOTALS	$14,602.06	$13,692.52
SURPLUS INCOME FOR YEAR	$ 2,743.52	$ 2,781.17

The records disclosing cash transactions for the year were checked in detail. All recorded receipts were accounted for by deposits for account of the Society and disbursements were evidenced by satisfactory vouchers. Balances on deposit at the close of the year were independently confirmed, the depositories and balances therein being as follows:

CHECKING ACCOUNT:		
First & Merchants National Bank		$ 2,831.45
SAVINGS ACCOUNTS:		
First & Merchants National Bank	$5,709.72	
The Morris Plan Bank of Virginia	5,136.38	10,846.10
TOTAL		$13,677.55

The indebtedness of members for dues and accounts receivable for advertising in and subscriptions to the MEDICAL MONTHLY publication are stated at collectible value, as estimated by the Executive Secretary-Treasurer. No attempt was made to verify these by correspondence with debtors.

Securities owned consist of United States Savings Bonds. These were purchased February 19, 1936, at a cost of $525.00 and have a current redemption value of $567.00. The bonds mature February 19, 1946, at face value, $750.00. This asset was verified by inspection of the bonds.

Provision has been made in the Balance Sheet for all ascertained liabilities at September 30, 1939.

Insurance in force, as shown by policies on hand, was as stated below:

Fire—Office Furniture and Fixtures	$1,000.00
Fire—Walter Reed Home, Belroi, Virginia	1,000.00
Fidelity Bond—Secretary-Treasurer	2,500.00

The bookkeeping records were found to have been kept in a satisfactory manner for the year under examination.

Respectfully submitted,

SHEPHERD, JACKSON & WIGGINS,
Certified Public Accountants.

Balance Sheet—September 30, 1939
Exhibit "A"

ASSETS

CASH:		
On Deposit:		
Checking Account	$ 2,831.45	
Savings Account	10,846.10	
		$13,677.55
DUE FROM MEMBERS:		
(Estimated Collectible Value)		
1939 Dues—250 @ $5.00 each		1,250.00
ACCOUNTS RECEIVABLE:		
VIRGINIA MEDICAL MONTHLY:		
For Advertising	$ 535.81	
For Subscriptions (Estimated)	40.00	
		575.81
SECURITIES:		
United States Savings Bonds (Current Redemption Value $567.00)		525.00
TOTAL ASSETS		$16,028.36

LIABILITIES AND SURPLUS

For Preparation of MEDICAL JOURNAL—September, 1939, Issue	$ 525.78	
For Programs and Office Supplies	110.75	
Reserve for Social Security Tax	22.50	
		$ 659.03
SURPLUS:		
Excess of Assets over Liabilities		15,369.33
TOTAL LIABILITIES AND SUPPLIES		$16,028.36

Statement of Income and Expense—Fiscal Year Ended September 30, 1939
Exhibit "B"

MEDICAL SOCIETY OF VIRGINIA DIVISION

		ACTUAL	BUDGET
INCOME:			
Dues—From Members		$ 5,142.71	$
Royalties on History of Medicine		37.75	
Interest on Securities and Savings Accounts (½)		90.51	
Special Fund for Post Graduate Education (Transfer)		62.69	
TOTAL		$ 5,333.66	$ 5,081.08
EXPENSES:			
Salaries (Apportioned):			
Secretary-Treasurer	$1,800.00		
Clerical Assistance	930.00		
		$ 2,730.00	$ 2,730.00

Office Rent and Telephone	364.26	365.00
Stationery and Office Supplies	64.11	65.00
Repairs and Replacements	35.28	45.00
Postage	223.78	235.00
Audit Fee (Apportioned)	30.00	30.00
Miscellaneous Expense	31.06	25.00
Programs	80.00	80.00
Badges	37.62	40.00
Reporting Annual Meeting	121.58	175.00
Social Security Tax (Apportioned)	61.93	----
President's Expense	66.20	100.00
President-Elect's Expense	----	50.00
Past Officers' Expense	42.40	42.40
Councilors' and Officers' Expense	45.41	70.00
Invited Guests' Expense	117.33	60.00
Delegates to A. M. A. Convention	216.00	150.00
Committee on Scientific Exhibits and Clinics	154.14	125.00
Walter Reed Commission	38.50	75.00
Department of Clinical and Medical Education	605.55	1,225.76
Committee on Medical Economics	25.30	75.00
Committee on Child Welfare	----	10.00
Committee on Legislation	----	25.00
Committee on Maternal Welfare	6.10	10.00
Committee on Cancer	16.12	20.00
TOTAL	$ 5,112.67	$ 5,828.16
SURPLUS INCOME FOR YEAR	$ 220.99	$ —0—

VIRGINIA MEDICAL MONTHLY DIVISION

INCOME:		ACTUAL	BUDGET
Advertising		$ 8,122.10	$
Subscriptions:			
Members	$3,428.47		
Non-Members	370.85		
		3,799.32	
Interest on Securities and savings Accounts (½)		90.50	
TOTAL		$12,011.92	$11,392.61
EXPENSES:			
Salaries (Apportioned):			
Secretary-Treasurer	$1,800.00		
Clerical Assistance	930.00		
		$ 2,730.00	$ 2,730.00
Preparation of JOURNAL (Including cost of Distribution)		6,193.00	6,500.00
Office Rent and Telephone		352.98	365.00
Stationery and Office Supplies		33.77	30.00
Repairs and Replacements		35.28	45.00
Office Postage		38.59	50.00
Audit Fee (Apportioned)		30.00	30.00
Miscellaneous Expense		13.83	20.00
Social Security Tax (Apportioned)		61.94	----
TOTAL		$ 9,489.39	$ 9,770.00
SURPLUS INCOME FOR YEAR		$ 2,522.53	$ —0—

SUMMARY OF OPERATIONS

DIVISION	ACTUAL INCOME	ACTUAL EXPENSES	SURPLUS INCOME
Medical Society	$ 5,333.66	$ 5,112.67	$ 220.99
Medical Journal	12,011.92	9,489.39	2,522.53
TOTAL	$17,345.58	$14,602.06	$ 2,743.52

RECONCILIATION OF CASH BALANCE

Balance—October 1, 1938	$ 9,422.78
Add:	
Surplus Income for Year (Above)	2,743.52
Proceeds of Bonds Called 8-1-39	1,500.00
Unreported Social Security Tax from employees	11.25
BALANCE—SEPTEMBER 30, 1939 (Exh. "A")	$13,677.55

Public Health Statistics

I. C. RIGGIN, M. D.
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for September, 1939, compared with the same month in 1938 follows:

	1939	*1938*
Typhoid and paratyphoid fever	82	66
Diphtheria	201	201
Scarlet fever	100	88
Measles	35	12
Meningitis	6	5
Poliomyelitis	13	5
Rocky Mountain spotted fever	11	7
Typhus fever	1	1
Undulant fever	3	5
Tularaemia	8	2

LEAD EXPOSURE IN THE PRINTING INDUSTRY

A study has been started by the Department's Bureau of Industrial Hygiene to determine the extent to which workers in the printing industry in Virginia are exposed to lead. A representative number of commercial printing plants will be investigated, as well as several newspaper establishments. Similar studies in other states indicate that excessive and harmful concentrations of lead may occur in certain departments and in certain processes.

Atmospheric samples of fumes and dust for the determination of the amount of lead are being collected in the various workrooms in the plants by means of an electrostatic precipitator. Analyses are then made chemically by the dithizone method, and

values determined by use of the neutral wedge photometer. Temporary laboratory space for making these analyses has been made available in the new clinic building of the Medical College of Virginia.

PHYSICAL THERAPY CENTERS

A physiotherapist has been added to the staff of the Crippled Children's Bureau of the State Health Department to develop physiotherapy clinic centers in cooperation with local health department orthopedic clinics. Weekly centers are operating at Lexington, Chatham, South Boston, Lawrenceville, and Suffolk. From ten to fifteen children are treated daily under the direction of the attending orthopedic surgeon.

An attempt is thus being made to bring the facilities of a well-equipped orthopedic hospital to rural areas of Virginia. All of the approved and accepted methods, including massage, corrective exercises, heliotherapy, and underwater gymnastics, are being used with children capable of being benefited by them.

A special effort is being made to have all recent polio patients brought to the clinics, as such patients derive greater benefit from treatment than any other class.

PREVENTION OF BLINDNESS

The distribution of ampules of a 1 per cent solution of nitrate of silver to physicians and midwives was begun in 1918 through the Department's Bureau of Vital Statistics. Experience shows that distribution of these ampules by the bureau is the most satisfactory arrangement, as ampules can be sent to each physician and midwife according to the number of births reported by each, an apportionment made possible by records kept in the Bureau of Vital Statistics only. This apportionment prevents overstocking, with the deterioration of the solution resulting from being kept on hand over eighteen months.

With the cases of the other preventable diseases, cases of ophthalmia neonatorum are reported weekly to the Health Department by the physicians called upon to treat them, and it is believed that they are reported just as completely.

In 1938, three white and six colored cases were reported, none as far as could be learned resulting in total or partial blindness. One of the colored infants died from the infection.

During the past four years, since there has been special follow-up care, fifty-eight cases have been reported, of which twenty-seven were white and thirty-one colored. Of the twenty-seven white cases, twenty recovered, one resulted in total blindness, four in impaired vision, and one died. Nothing could be learned of the one remaining. Of the thirty-one colored, twenty-three recovered, one resulted in impaired vision, and one died. None of these resulted in total blindness. No information was obtained about the six remaining.

Information is inadequate as to the causative organism; but in about half of the cases gonorrhea was given.

While these figures are probably not complete, they reveal great improvement over the situation of twenty years ago when preventive measures were rarely employed.

In the interest of statistical completeness and accuracy, the Bureau of Vital Statistics solicits the aid of the medical profession in its effort to secure a record of every case and a clear statement of the causative organism and final result of treatment. The results of treatment effected despite the delay in consulting a physician and inadequate nursing are truly remarkable if a large percentage are of gonorrheal origin.

Woman's Auxiliary
to the
Medical Society of Virginia

President—MRS. HENRY A. LATANE, Alexandria.
President-Elect—MRS. GRIFFIN HOLLAND, Eastville.
Recording Secretary—MRS. T. N. HUNNICUTT, Newport News.
Treasurer—MRS. REUBEN F. SIMMS, Richmond.
Parliamentarian—MRS. JOSEPH BEAR, Richmond.
Chairman, Press and Publicity—MRS. HENRY M. SNEAD, Petersburg.

President's Message at Richmond Meeting.

The year of 1938-39 in which I have tried to serve as President of the Woman's Auxiliary to the Medical Society of Virginia will soon be history. May we pause for a few minutes and ponder together just what it has meant to each of us. In this rushing age of confusion and chaos in all walks of life, our honored medical profession no exception, have we been to them all our Auxiliary stands for both in education of the laity and in moral support? Have we even in some small way been helpful to all with whom we have come in contact?

As I take a retrospective glance of the year now drawing to a close with all its various experiences and pleasant associations with the delightful women of Virginia, and recall all the kindnesses shown me, on so many occasions, I am overwhelmed, and find no words to express my feelings.

I have had our work constantly on my mind and heart, and have tried not to let pass an opportunity to forward its interest; to this end I have written 173 letters and sixty-four cards, sent reports to National, written an article for our News Letter, written four articles for our State Medical Journal, addressed each local group whom I have visited (and I have accepted every invitation), made talks on health at various times at other organizations, addressed the Woman's Auxiliary of The Old Dominion Medical Society at their annual convention in Richmond last June, have presided at all meetings of our own Mid-Tidewater group, of which I have served as president also. The splendid work of the local groups will speak for themselves in the reports to follow. The chairmen of our Standing Committees have planned such fine objectives, and ones so far-reaching, that it was impossible to see all the fruits of their labors in one year. To them my heartiest thanks and appreciation!

I am especially grateful that in my year of office our convention should meet in this lovely city, for to me it is the dearest in all our State—Richmond on the James with all its lovely homes and gardens, its beautiful statues, its spacious stores, and last but not least the sterling characters of its men and women who, realizing as they do, that nature has blessed them with lovely scenery, healthful climate, abundant and varied foods, and natural resources, are doing each year more and more to enrich and perfect our Southland.

Our organization during its seventeen years has made progress in all the fields of endeavors to which it has devoted its efforts. I am encouraged in believing that during the year now drawing to a close many of our doctors are realizing as never before what our organization means to the profession and the communities in which it functions.

We have worked with all organizations in promoting health education; ministering to suffering humanity, not only in hospitals but wherever it might be found; we have helped provide the necessities of life for indigent patients. Indeed, our efforts in these lines have aroused others to their duty, and the doctor is relieved and more able to render his professional duties.

The helpful talks and lectures we have had from our doctors on various occasions have opened our eyes to the many dangerous conditions now existing in our State, and the need for intelligent and tactful handling in educating the public to relieving these conditions.

I shall always regret, owing to a serious illness in my family, that I was unable to attend our National Convention in St. Louis. I wired our regrets and greetings, and was thrilled to learn our exhibit there, planned by our capable chairman, was excelled by none.

I have accepted every invitation of our local groups to meet with them and address them on some phase of our work. This great privilege and the happy contacts with our ladies were most delightful.

The splendid cooperation of all who were in any way connected with our organization, your kindness to me, your tolerance of my frail efforts, your sympathy during my anxious hours, during the illness of my son, have all given me an insight to the fine women we have in Virginia.

If I have in any way advanced the ideals of our Auxiliary, or contributed to its progress, your encouragement and cooperation have made it possible. We have worked happily and harmoniously together, and now that I relinquish my duties and responsibilities, which at first I accepted with qualms of fear and misgiving, it is with a tinge of regret that I pass them on to one who is more capable than I. May I beg for her the same loyal cooperation and support you have given me.

I thank you from the depths of my heart for the high honor and privilege of serving you. In conclusion, may I leave with you these words from Chalmers:

"Live for something. Do good and leave behind you a monument of virtue that the storm of time can never destroy. Write your name in kindness, love and mercy on the hearts of thousands you come in contact with year by year, and you will never be forgotten. Your name, your deeds will be as legible on the hearts you leave behind as the stars on the brow of the evening. Good deeds will shine as the stars of heaven."

Faithfully yours,

(MRS. HAWES) ELLIE COCKE CAMPBELL,

President, 1938-39.

Report of Richmond Convention.

The Woman's Auxiliary to the Medical Society of Virginia met in their seventeenth session in Richmond, October 4th and 5th, 1939.

The Pre-Convention Board meeting was at a breakfast held at 8:30 a. m., October 4th, with the President, Mrs. Hawes Campbell of Venter presiding.

The first session of the convention opened at 10:00 a. m. at Hotel John Marshall, with Mrs. Campbell again presiding.

The registration showed Mrs. Rollo K. Packard of Chicago, President of the Woman's Auxiliary to the American Medical Association, Mrs. W. K. West of Oklahoma City, President of the Auxiliary to the Southern Medical Association, with officers and members from Virginia, totaling 149.

Reports were presented from the officers, the department heads, presidents of local groups, and chairmen of standing and special committees.

A memorial service was held for the one member who had passed away this year.

Recess was taken at 12:50 for the annual luncheon, which was attended by 123, with Mrs. Campbell presiding. The principal speakers at this time were Mrs. Rollo K. Packard; Mrs. W. K. West; Mrs. H. A. Latane of Alexandria, president-elect of the State Auxiliary; Dr. Hugh H. Trout of Roanoke, president-elect of the Medical Society of Virginia; Dr. P. St.L. Moncure of Norfolk, chairman of the Advisory Council from the Society; Dr. W. T. Sanger of Richmond, President of the Medical College of Virginia; Dr. Hawes Campbell of Venter, member of the Advisory Council; and Dr. Karl S. Blackwell of Richmond, President of the Richmond Academy of Medicine. Mrs. James K. Hall, Richmond, president of the local auxiliary, and general chairman for the convention, introduced her committee.

The membership trophy was presented to the Richmond Auxiliary by Mrs. W. Clyde Adkerson of Lynchburg, State membership chairman, and was received by Mrs. L. O. Snead, membership chairman of the Richmond group.

It was announced that the Auxiliary to the Accomac-Northampton Medical Society would receive the exhibit award.

It was also announced that Mrs. Hawes Campbell will be the next counselor from Virginia to the Woman's Auxiliary to the Southern Medical Association.

A recess was declared at this time so the members could go to the Governor's mansion where they were received by Mrs. James H. Price, wife of Virginia's Governor.

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The second session of the Auxiliary was held at 9:20 a. m., October 5, and was called to order by the President, Mrs. Campbell.

Mrs. H. A. Latane of Alexandria was appointed delegate to the American Medical Auxiliary meeting in New York in 1940, with Mrs. Southgate Leigh as alternate, and Mrs. E. Latane Flanagan of Richmond as delegate to the Southern Medical Auxiliary in Memphis in November, with Mrs. Reuben F. Simms of Richmond as alternate.

An invitation was extended from the Auxiliary to the West Virginia State Medical Association to meet with them at White Sulphur Springs in 1940 and was accepted.

The recommendations from the Board were accepted as read.

Mrs. Packard spoke again briefly, asking Auxiliary members to read the *Journal of the A.M.A.* and their State medical journal.

The Nominating Committee's report was accepted and the Secretary instructed to cast the ballot, whereupon the following officers were declared elected:

President—Mrs. Henry Augustine Latane, Alexandria.

President-elect—Mrs. Griffin W. Holland, Eastville.

Vice-Presidents—Mrs. T. Brantley Henderson, Williamsburg; Mrs. M. N. King, Norfolk; Mrs. W. B. McIlwaine, Petersburg; Mrs. E. Latane Flanagan, Richmond.

Recording Secretary—Mrs. Thos. Hunnicutt, Jr., Newport News.

Treasurer—Mrs. Reuben F. Simms, Richmond.

Parliamentarian—Mrs. Joseph Bear, Richmond.

The new officers were installed by Mrs. Bear and Mrs. Campbell presented the gavel to the in-coming president.

Mrs. Latane, in her inaugural address, asked that we adopt as our motto for this year "Be and not seem".

A fashion show and luncheon at Miller and Rhoads, followed by a tea at the home of Mrs. William Branch Porter, were announced.

The Auxiliary adjourned at 10:40 a. m.

(MRS. E. LATANE) LOUISE W. FLANAGAN,
Recording Secretary.

Northampton-Accomac Auxiliary.

The Woman's Auxiliary to the Northampton-Accomac Medical Societies held its regular quarterly meeting at the home of Mrs. O. R. Fletcher, Sanford, on October 10.

Reports from the State meeting at Richmond were given by Mrs. G. W. Holland and Mrs. J. Walker Jackson who were delegates.

The Auxiliary is very proud to announce Mrs. G. W. Holland, of Eastville, as State President-elect, and feels greatly honored in having Mrs. Holland as one of its charter members.

Mrs. Holland's report of the State meeting included announcement of prize won by the Auxiliary for a Scrap Book, which was compiled by Mrs. J. Walker Jackson, of Machipongo.

The Constitution and By-laws were again presented to the Auxiliary. The local hospital at Nassawadox was again voted the main objective of Auxiliary work and a second gift of chairs for patients' rooms was announced.

The joint picnic of the Medical Societies and the Auxiliary, which was held at Wilkin's Beach, on July 6, was pronounced a great success, but, owing to distance, many Accomac members were unable to attend, and an invitation was extended the Auxiliary, by the Medical Societies, to a dinner in April, which is to take the place of the July picnic.

Election of officers for 1940 followed: President, Mrs. W. B. Trower, Cape Charles; Vice-President, Mrs. J. L. DeCormis, Accomac; Secretary, Mrs. Kellam Ames, Cape Charles; Treasurer, Mrs. Burleigh Mears, Belle Haven.

A vote of thanks and appreciation was given the President, Mrs. J. Fred Edmonds, and other outgoing officers.

A delightful social hour followed adjournment of the meeting.

CATHERINE R. TROWER,
(MRS. HOLLAND TROWER)
Chairman, Press and Publicity.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Gilliland Laboratories.

Typhoid—Paratyphoid Bacterial Vaccine Immunizing, 50 cc. vial.

Lederle Laboratories, Inc.

Capsules Sulfapyridine—Lederle, 0.25 Gm.

E. R. Squibb & Sons.

Ascorbic Acid—Squibb.

Tablets Ascorbic Acid—Squibb, 25 mg.

Tablets Ascorbic Acid—Squibb, 50 mg.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Bismuth Subsalicylate in Oil (Gilliland), 0.13 Gm. (2 grains) per cc.—A suspension of bismuth subsalicylate in vegetable oil (New and Nonofficial Remedies, 1939, p. 141) containing in each cubic centimeter 0.13 Gm. (2 grains) of bismuth subsalicylate U. S. P. with 3 per cent of chlorobutanol added. Marketed in vials containing 15 cc., 30 cc., 60 cc. and 120 cc. and in bottles containing 480 cc. Gilliland Laboratories, Inc., Marietta, Pa.

Bismuth Subsalicylate in Oil (Gilliland), 0.2 Gm. (3 grains) per cc.—A suspension of bismuth subsalicylate U. S. P. in vegetable oil containing in each cubic centimeter 0.2 Gm. (3 grains) of bismuth subsalicylate U. S. P. (New and Nonofficial Remedies, 1939, p. 141) with 3 per cent of chlorobutanol added. Marketed in vials containing 15 cc., 30 cc., 60 cc. and 120 cc. and in bottles containing 480 cc. Gilliland Laboratories, Inc., Marietta, Pa.

Rabies Vaccine—Gilliland (Modified Semple Method). An anti-rabic vaccine that differs from Rabies Vaccine—Gilliland (Semple Method) (New and Nonofficial Remedies, 1939, p. 415) in the concentration of virus, in the period of inactivation and in the dose to be administered. It is marketed in packages of fourteen vials, each containing 0.5 cc. Gilliland Laboratories, Inc., Marietta, Pa. (*J. A. M. A.*, September 9, 1939, p. 1033.)

Propaganda for Reform

Sulfapyridine in Bacterial Endocarditis.—Reports to-date show that sulfapyridine as well as sulfanilamide may bring down the temperature and pulse for a considerable time in patients ill with subacute bacterial endocarditis. A fall in the number of colonies of streptococcus viridans in the blood generally accompanies the decrease in fever, and the blood stream may even become sterile. In many instances after a shorter or longer period of time, however, the blood culture will become positive again and the clinical manifestations of the disease will reappear and progress in general, despite further drug therapy. Because sulfanilamide or sulfapyridine inhibits the multiplication of streptococcus viridans in blood cultures, all blood cultures should be held for at least twenty-eight days before being discarded as negative. There is no definite rule that can be applied to determine the length of time that one can safely administer sulfapyridine. If a patient does not show any toxic manifestations there is no reason why the drug cannot be continued indefinitely. As far as is known there are no reports of "cure" in subacute bacterial endocarditis following sulfapyridine therapy. (*J. A. M. A.*, August 19, 1939, p. 703.)

Virginia Medical Monthly

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Editorial

Hugh Henry Trout.

Hugh Henry Trout was born in Staunton, Virginia, on June 8, 1878. He lived there during his childhood and attended the Public Schools of that city. When he had grown to boyhood, he entered the Episcopal High School at Alexandria, where he graduated in 1898. He attended the University of Virginia in the College and Medical Departments until he received the degree of Doctor of Medicine in 1902. After graduation, he served internships in the Union Protestant Infirmary (now the Union Memorial Hospital), and St. Joseph's Hospital in Baltimore, Maryland, and was then appointed to the Dispensary Service of Johns Hopkins Hospital.

He returned to his native state and established his surgical practice in Roanoke in 1908. He was successful in every way and, after a short while, built the Jefferson Hospital which has since been operated under his direction.

Hugh Trout is first of all a Virginian. Born in the Great Valley, he has spent his life there except when he went away for training preparatory to his fine career. He is intensely loyal to his State and is ever thoughtful of its welfare. In his community he has always been in the front in working for the public good. His thought is decidedly liberal and in this he has been profoundly influenced by the works of Thomas Jefferson. For this great statesman Hugh Trout has had the greatest admiration and he has made a thorough study of his life and works. Educated at Jefferson's University, he has carried throughout his life the principles for which Jefferson fought. He has read everything available about Jefferson and many of these books form the most prized collection in his library. It is significant that he named his hospital for him.

Just as Jefferson influenced his general training, so his professional life has been molded by another great man. When he entered the Baltimore Hospitals, he soon met Dr. John M. T. Finney and immediately fell under the auspicious influence of this great surgeon. The friendship of these two men has been long and true, and flourishes even more warmly now than ever. The sound teaching and careful technic of Finney were imparted to Hugh Trout with more than the thought of a great teacher, it was rather like the influence of an older brother. The pupil was an apt one so Hugh Trout began his work with the background of a liberal education, sound teaching in medicine from the masters at the University, and wide experience in hospital work under excellent men.

In the Jefferson Hospital he has built not only a fine building, but also a group of men activated by principles like his own and influenced by his sound teaching. Illustrative of the progressive work of this group is the organization of a Tumor Clinic which meets all of the standard requirements of and has

been approved by the Medical Society of Virginia.

His contributions to Medical Literature are characterized by thoroughness and clarity. A number of these papers have been illustrated by excellent motion pictures. Examples of his work are "New Principle in Treatment of Ulcers Due to Varicose Veins and Lymphatic Blockage," "Study in the Etiology and Prognosis of Carcinoma of the Breast," "The Release of Pericardial Adhesions," and "An Appraisal of the Surgical Treatment of Pulmonary Tuberculosis".

He is a member of the Roanoke Academy of Medicine, the Southwestern Virginia Medical Society, the Medical Society of Virginia, the American Medical Association, the American College of Surgeons, the Southern Surgical Association, the American Surgical Association, the International Surgical Association, and the honorary fraternity Alpha Omega Alpha. He has been chairman of the Surgical Section of the A. M. A., and President of the Southern Surgical Association.

HUGH HENRY TROUT, M. D.,
President, Medical Society of Virginia.

When this country entered the World War, Hugh Trout's thoughts turned at once to France. He had large responsibilities at home but these were put in order and he entered the Army as Major in the Medical Reserve Corps. He was first attached to Mobile Operating Unit No. 1 as operating surgeon. After active service with battle casualties he was promoted to the rank of Lieutenant Colonel and made Chief of the Surgical Service of Mobile Hospital No. 1. Here his surgical skill and cheering personality repaired the bodies and minds of many casualties.

In spite of the intense activity of his professional life he has found time to indulge his love for natural things on his model farm near Roanoke. Here in addition to a herd of pure bred cattle are found many rare specimens of shrubs, fruits, trees, and fowl.

This impressive record of accomplishment is overshadowed by his devotion to human beings; beginning in his splendid family, it extends abroad with Virginians always uppermost in his heart.

The Medical Society of Virginia has very properly added Hugh Trout to the long list of distinguished men who have presided over its affairs.

C. W.

Syphilis in the World of Tomorrow.

Listing the mode of infection, the localization of the lesions, the influence of vitamins and the cause of death as still unsettled problems in the field of Lues, Syphilographer Joseph E. Moore delivered himself at greater length at a recent meeting of the American Clinical and Climatological Association concerning three other phases of this absorbing subject. To this experienced observer of the disease the much trumpeted difference between the incidence of syphilis in the Scandinavian countries and in this country (I and 25) cannot be altogether attributed to variation in the methods of control. Just as in tuberculosis, there appears to be a natural history of the disease which probably largely determines its virulence and spread at any particular time. About such epidemiological factors we still know very little.

In discussing the occurrence of positive Wassermann reactions in normal persons (I in 2,000) the same speaker pointed out the curious fact that there is a high incidence of positive reactions in certain animals and expressed the opinion that attempts to modify the test in the direction of increased sensitivity carry with them definite loss of specificity.

In commenting upon the fact that no recent drug exceeds old arsphenamine in spirochetal activity and that all modern treatment is still too protracted, dangerous and expensive, Dr. Moore expressed the belief that the future of drug therapy in syphilis does not lie in the further exploitation of the metals or their chemical modification, but in the discovery of some more diffusible agent such as sulfanilamide, an agent which would favorably affect the important time-dosage relationship. His remarks led to the conclusion that the time had arrived to re-examine all the accumulated knowledge concerning syphilis that has been amassed during the last thirty years.

Such a point of view is arresting, expressed as it is at a time when the legions of antisyphilitic crusaders, armed with old concepts, are pressing a campaign of systematic control as if that were all that was needed to rid the world of lues venerea. It implies that medically trained hands and heads must guide, temper and control our latest national health crusade.

A Popular Exemption.

In the current issue of *Hospitals,* the esteemed publication of the American Hospital Association, there is an editorial dealing with the private hospital. Here is recorded the fact that in this country and Canada there are over 2,000 such institutions and that the sum total of their contributions to the care of the sick is enormous. Attention is also directed to the fact that they were built to meet local needs at times when such needs were greatest, that they were erected in faith and charity with little thought of gain, and that on the whole they have maintained within them reasonably high standards of service.

The editorial reflects the concern of the Association for the future of these institutions, believing that they have an established place in the hospital field and suggesting that they be utilized further to meet the growing need in this country for hospital beds for the indigent and low income groups. It is suggested that this might be indirectly accomplished by off-setting taxes against such hospitals to the amount of the charitable service rendered by them to their communities.

In this connection it is of interest to note that the last Congress amended the Federal Social Security Act so as to exempt from the provisions of that Act student nurses who are pursuing their training and interns who have completed the four-year medical course in approved institutions. This represents a tremendous saving to the private hospitals everywhere. It is with satisfaction that we in Virginia recall that the idea behind this amendment was conceived and first advanced in the Richmond Hospital Council, and that it was through the instrumentality of the Virginia Hospital Association and its efficient secretary, Mr. M. Haskins Coleman, that this amendment, national in its application, is destined to have great influence upon the future of all privately operated hospitals in this country.

A Tar Heel Born.

The Medical Society of the State of North Carolina has committed itself to the publication of a journal of its own under the editorial management of Dr. Wingate M. Johnson and an imposing board of associates. This new publication will make its bow on January 1, 1940. Money saved on the publication of its transactions and receipts from advertisements and a modest subscription price should guarantee its financial success.

Like most state journals, the editors will have to face up to the difficult task of deciding what sort of material they will publish. It will often be necessary to sacrifice quality to expediency in following the general purpose of offering an open and democratic forum for medical discussion, and we should like to warn the new journal against taking on too large a supply of red ink and rejection slips. A state journal that goes in only for new ideas and the reports of research that national journals delight to publish is apt to find itself with a good stock of news items, editorial squibs, reviews, advertisements and little else.

The VIRGINIA MEDICAL MONTHLY welcomes the official organ of a sister state to the family of medical journals. It is a big family numbering several hundred. It is a family in which birth control has never been practiced and in which the death rate is not noticeably high. There is inanition among some of the children, there are a few cripples and a few overgrown siblings. Among the elder ones there are grave unapproachables, some that follow queer sidelines and at least one imperialistic lordling who snaps his fingers for the lesser members to rush to do his bidding. It is a fairly safe family in which to live. One can easily hide one's faults in so large a group. One can even say things sometimes about one's betters with little chance of being overheard.

The thousands of pages of printed material turned out each month by all the journals of this country offer a safe hiding ground for mediocrity. Altogether the family makes quite a showing as the years roll by and the fecundity of each member is unabated. Mounting volumes of medical journals tax the ability of medical libraries to carry them and to store them on their shelves. But by them much local vanity is satisfied, much unemployment among printers is prevented, and many industrious and acquisitive minds are kept busy searching for the nuggets of truth hidden in the tons of paper and print.

A Perfectionist.

Harvey Cushing, arteriosclerotic septuagenarian, died not unexpectedly on October 7, at New Haven, Connecticut. Harvey Cushing, pioneer in surgery of the brain, professor of Johns Hopkins, Harvard and Yale Universities, author of a biography of Sir William Osler, lives on in the memory of thousands of his students and admirers.

Although his life in many respects paralleled the life of the friend he helped to immortalize, Cushing was in other respects Osler's antithesis. To the casual observer, possibly to some of his confrères, he did not seem to radiate the warmth of his hero. Perhaps the explanation lies in a rare quality of mind and heart that had its salutary effect upon many who came in contact with him. Meticulousness characterized what he did, said and wrote—attention to detail, intolerance of anything but the best, and willingness to sacrifice time, strength and health to attain the quintessence of perfection. This scrupulosity marked his style as an author, controlled his conduct as an experimenter and surgeon, and led him to speak out in meeting with a force and sharpness that was often biting and blighting. If he had left no other impression than that of a perfectionist, his contribution would have been well made and worth while.

He takes his place with the great biographers. When his work as a neurological surgeon shall have been forgotten, his contribution as a biographer will remain. The tremendous enthusiasm for medical history in this country within the last ten or fifteen years is attributable to a number of factors, some of it to the life and teaching of Sir William Osler, but much of it to the popularization of the Oslerian way of life by Harvey Cushing's magnificent biography.

Proceedings of Societies

Lynchburg Academy of Medicine.

Dr. S. E. Oglesby presided at the regular meeting of the Academy on September 11, at which there were present thirty-nine members and six visitors.

Dr. James Gorman reporting for the committee investigating prepaid medical insurance offered the following resolution to the delegates to the State Medical meeting at Richmond: "Be it resolved that the Medical Society of Virginia endorse the principle of prepayment sickness insurance of the low income group and authorize the optional establishment of local, county or district plans providing they are sanctioned and controlled by the local county or district societies and that patients are given free choice of physician and hospital."

Mr. E. H. Pearl, representing the Commercial Casualty Insurance Company, presented a group health and accident insurance which was discussed generally and postponed for further investigation and action.

Dr. Harper announced that $125.00 was now available through the local Cancer Committee for indigent cancer patients.

Dr. Fletcher Woodward, from the ear, eye, nose and throat department of the University of Virginia Medical Staff, presented an illustrated lecture on "The Importance of Endoscopy in the Practice of Medicine", which was very instructive and enjoyed by all.

The Academy had the honor also of having as guests Dr. H. S. Hedges and Dr. G. S. Fitz-Hugh, likewise of the ear, eye, nose and throat department of the University of Virginia Medical Staff.

The last meeting of the Academy was held October 2, with the President, Dr. S. E. Oglesby, presiding.

Dr. E. G. Scott made an appeal to the profession to support the Community Chest in its coming campaign stating that it was the general opinion that the doctors were not keeping up with their end financially.

Dr. J. W. Devine, Sr., announced that the Society was taking advantage of the broadcast as prepared by the State Health Department and was broadcasting Tuesdays and Fridays at 1:45 P. M. over WLVA.

Dr. E. B. Shepherd of Madison Heights was elected to membership.

Dr. E. G. Scott had the paper of the evening on "Angina Pectoris." This educational treatise was keenly followed by the members.

Dr. Harvey Brownley announced that Drs. Harry Warthen, associate Professor of Surgery and William Jordan, chief of Diabetic Clinic from the Medical College of Virginia, would present a paper on "Medical and Surgical Aspects of the Elderly Diabetic."

Twenty-seven members and three visitors were present.

C. E. KEEFER,
Secretary-Treasurer.

The Fairfax County Medical Society

Met at Herndon on August 10, at which time the following officers were elected: President, Dr. William Meyer, Herndon; vice-president, Dr. W. P. Caton, Alexandria; secretary, Dr. Alice H. Kiessling, East Falls Church; and treasurer, Dr. F. M. Brooks, Fairfax Station. The last two were re-elected.

After a discussion of things interesting to the general practitioner, there was an old-fashioned country dinner held at Old Dranesville Tavern.

The next meeting will be in November.

Roanoke Academy of Medicine.

At the first Fall meeting of the Academy on October 2, Dr. L. G. Richards was installed as president and Dr. David B. Stuart as secretary-treasurer. After taking office, Dr. Richards gave his presidential address, entitled "Spastic Colitis", and this paper was continued by Dr. Charles Peterson in discussing the X-ray findings for this condition. Refreshments were served after the meeting.

Drs. Charles M. Irvin and Blanton P. Seward are this year's vice-presidents, and the following were named to the various committees: *Executive,* Drs. H. H. Wescott, F. A. Farmer, E. G. Gill, M. A. Johnson and J. W. Preston; *Judiciary,* Drs. G. B. Lawson, T. D. Armistead, E. H. Luck, Alvah Stone and D. B. Stuart; *Program,* Drs. A. C. Davis, Rees Morgan and C. H. Peterson; *Membership,* Drs. K. D. Graves, John O. Boyd and G. G. Rhudy; *Legislation,* Dr. J. D. Willis; *Public Health,* Drs. W. P. Jackson, R. H. DuBose, G. W. Hooker, W. L. Powell and Churchill Robertson.

The Northampton County Medical Society

Held its regular quarterly meeting on October 9. The feature of the meeting was a paper prepared by Mrs. Wm. Bullitt Fitzhugh on "The Doctors of Yester-Years in Accomac and Northampton Counties". Mrs. Fitzhugh is a descendant of doctors taking part in the Revolutionary and Civil Wars, and her husband, Col. Fitzhugh, is sergeant-at-arms of the Virginia State Legislature. In her paper, there were mentioned the names of about 165 doctors, past and present.

Patrick-Henry Medical Society.

The regular quatrerly meeting of this Society was held in Martinsville, on the evening of October 13, at which time the following officers were elected for 1940: President, Dr. W. C. Akers, Stuart; vice-president, Dr. C. R. Titus, Bassetts; secretary-treasurer, Dr. R. H. Walker (re-elected), Martinsville.

The Society, at this meeting, approved a trial of the Farm Security Administration plan for medical aid to the indigent farmers for Patrick and Henry Counties.

News Notes

The Richmond Meeting.

The annual meeting of the Medical Society of Virginia in Richmond, early in October, under the presidency of Dr. Alex. F. Robertson, Jr., of Staunton, was pronounced a success by the visitors, and the committee of arrangements is due a vote of thanks for their excellent work. There was a registered attendance of 625 besides nearly 150 ladies.

Exhibits, scientific and commercial, attracted much attention. A large room was set aside for the

scientific exhibits—forty-four in number. These included several demonstrative exhibits which were held in small rooms.

Guest speakers this year were Dr. Franklin M. Hanger, Jr., of New York City, Dr. Mont Reid of Cincinnati, both former Virginians, and Dr. Louis Hamman of Baltimore, who held a clinical pathological conference.

There were half a dozen round-table discussions, all of which were well attended.

As evidence that it was not "all work and no play", there were numerous group dinners and luncheons, golf on the opening day, and a banquet on the closing evening. Winners at golf were: Dr. Thomas G. Hardy, Farmville, for low gross score; Dr. Thomas W. Murrell, Richmond, low net; and Dr. E. H. Terrell, Richmond, low putting.

Dr. Hugh H. Trout of Roanoke succeeded to the presidency, and Dr. Walter B. Martin of Norfolk was named president-elect. The vice-presidents are: Dr. Karl S. Blackwell, Richmond; Dr. Frank A. Farmer, Roanoke; and Dr. Philip W. Boyd, Winchester. Names of councilors and delegates and alternates to the American Medical Association are included in minutes of the meeting in this issue of the MONTHLY.

An invitation was accepted from the West Virginia State Medical Association for this Society to hold a joint meeting with them in 1940 at White Sulphur Springs, W. Va.

Dates for Next Meeting of the Society.

Since the meeting in Richmond, committees from the Medical Society of Virginia and the West Virginia State Medical Association have held a meeting to plan for the joint session. At this, dates were selected as July 29, 30, and 31, 1940. This is just before many doctors start on vacations, the setting is attractive, and there should be a large attendance.

The Virginia Urological Society

Held its sixth annual meeting on October 4 in Richmond. There was a dinner meeting at the Hotel John Marshall, which was attended by twenty members.

Officers elected for 1939-40 were: President, Dr. A. A. Creecy, Newport News; vice-president, Dr. S. Beverly Cary, Roanoke; secretary-treasurer, Dr. Linwood D. Keyser, Roanoke. The following were elected to membership: Dr. Samuel A. Vest, associate professor of Urology, University of Virginia; Dr. Frank Helvestine, Roanoke; and Dr. Frank Pole, Richmond.

Dr. Samuel A. Vest, University of Virginia, was the guest speaker at the annual dinner meeting, his subject being "Endocrinologic Aspects of Urology".

The Virginia Radiological Society

Held a luncheon meeting on October 5, in Richmond, with an attendance of twenty. Drs. George Cooper, University, W. H. Whitmore, Norfolk, and W. F. Thornton, Lynchburg, were elected to membership. Dr. D. D. Talley presented an interesting case report, which was discussed by Dr. E. L. Flanagan. The following officers were elected: President, Dr. Fred M. Hodges, Richmond; vice-president, Dr. D. D. Talley, Richmond; and secretary-treasurer, Dr. V. W. Archer, University. In the afternoon, a round table discussion was conducted by Dr. B. H. Nichols, chief of the Radiological Department of the Cleveland Clinic, his subject being "The Upper Urinary Tract".

The Virginia Pediatric Society

Held its annual luncheon and business meeting in Richmond, October 5, with the president, Dr. W. W. Waddell, Jr., University, presiding. Twenty-nine members and nine visitors were present. Dr. W. W. Falkener, Newport News, and Dr. E. B. Neal, Roanoke, were elected to membership, and the following officers elected: President, Dr. S. A. Anderson, Jr., Richmond; vice-president, Dr. J. V. Bickford, Norfolk; and secretary-treasurer, Dr. J. M. Bishop (re-elected), Roanoke.

A round-table discussion in the afternoon was led by Dr. Charles W. Dunn, Philadelphia, his subject being "Endocrine Problems of Childhood". He was assisted by Dr. Rolland J. Main and Dr. Basil B. Jones, both of Richmond. This was well attended and a keen interest manifested.

The Neuropsychiatric Society of Virginia

Held a joint meeting with the North Carolina Neuropsychiatric Association on October 25, at the new Medical Center of the University of North Carolina in Chapel Hill. Upon request, the following program was presented by the Virginia doctors: Paresis and the Negro by Dr. L. X. Kolipinski, Petersburg; The Present Status of our Understanding of Convulsive Disorders by Dr. David C. Wilson, University; The Treatment of Parkinsonism with a Preparation of Belladonna Root by Dr. R. Finley Gayle, Jr., Richmond; and The Language-

Barrier in Depressed States by Dr. J. K. Hall, Richmond.

The Virginia Obstetrical and Gynecological Society

Held its annual meeting in Richmond on October 4. Dr. H. Hudnall Ware, Richmond, was elected president, and Dr. H. C. Spalding, Richmond, secretary-treasurer. New members admitted at this time are: Drs. Albert T. Walker, and James Parrish, of Portsmouth; William Garrison, Norfolk; and William H. Evans, Richmond.

Southern Medical Association.

Virginians should feel an especial interest in the meeting of the Southern Medical Association this year, as its presiding officer will be Dr. Walter E. Vest, a native of this State who still holds membership in the Medical Society of Virginia, in spite of the fact that he has been making his home in Huntington, W. Va., for a number of years.

Dates for this meeting are November 21-24, inclusive, in Memphis, one of the largest and most attractive cities in the territory of the Association. An excellent program has been arranged and the exhibits, scientific and commercial, will be of a high order. The exhibits and most of the sessions will be in the Municipal Auditorium, though a few meetings will be in nearby buildings.

Those who wish help in securing reservations should write at once to the Hotel Committee, Southern Medical Association, Box 224, Memphis, Tenn.

Did You Read That Card?

It was sent you recently, calling attention to the advertising in the MONTHLY, and requesting your help in keeping and making our patrons "satisfied customers". If you patronize them, they respond by taking space in *your* journal, and this makes it possible to give you a bigger and better publication.

We take pride in stating that our advertisers are all A-1, conforming to certain standards. If you secure their literature and use their coupons, it will be beneficial to you, to them, and to the MONTHLY. How about "lending a hand"?

Married.

Dr. Rees Morgan, Roanoke, and Miss Dorothy Hazelwood, Richmond, September 30.

Dr. Ray Huddle Grubbs, Christiansburg, and Miss Evelyn Elizabeth Wilson, Radford, September 16.

Dr. Byrd Stuart Leavell, Charlottesville, and Miss Nancy Butzner, Fredericksburg, October 7.

Dr. D. C. Daughtry and Miss Lucille Carr, both of Clinton, N. C., June 3. Dr. Daughtry is a member of the class of '39, Medical College of Virginia, and is now serving an internship at Receiving Hospital, Detroit, Mich.

Dr. Lee Scott Barksdale, health officer for Hopewell, and Miss Sara Calhoun Hudnall, of Hardings, recently.

Dr. Richard Boxley Bowles, Deltaville, and Miss Elizabeth Billups, of Mathews County, September 30.

Dr. Marvin Everett McRae, Chatham, and Miss Virginia Ramsey Martin, Richmond, October 7.

Dr. Carlyle Gregory Flake, an alumnus of the Medical School of the University of Virginia, and Miss Susan Appleton Binney, both of Boston, Mass., October 20.

Dr. Angelo Joseph Villani, Welch, W. Va., and Miss Virginia Vaynes, Lynchburg, September 30. Dr. Villani is an alumnus of the Medical College of Virginia, class of '35.

Dr. William A. Harris and Miss Mattie Puckett, both of Spotsylvania, October 19.

Medical College of Virginia News.

Dr. William B. Porter, professor of medicine, has been elected president of the American Clinical and Climatological Association.

Dr. Rolland J. Main, associate professor of physiology, has written a book on "The Care of a Small Rat Colony", which has been published by the C. V. Mosby Company.

The college has been loaned 250 milligrams of radium for use in cancer work by the National Cancer Institute of the United States Public Health Service. With this loan the college now has five hundred milligrams of radium available at all times.

Dr. Ina C. Hall, an assistant director of the hospital division, has been granted a leave of absence to take graduate work in hospital administration at the University of Chicago for a year.

The Kiwanis Club of Richmond has established a loan fund for aid to senior students of the college. This fund of $1,000.00 will be of great help to needy students.

Dr. Lewis E. Jarrett, director of the hospital di-

vision, attended the annual meeting of the American Hospital Association in Toronto.

The college inaugurated a series of broadcasts over the radio station W.R.V.A. on October 7. President Sanger made the first talk; this will be followed by talks by the four deans and others of the college faculty.

Mr. Wortley F. Rudd, dean of the school of pharmacy, has been appointed chairman of the policy program of the American Pharmaceutical Association. The next annual meeting of this association is scheduled for Richmond in May, 1940.

Dr. William T. Sanger, president, and Dr. Lee E. Sutton, Jr., dean of the medical school, attended the annual meeting of the Association of American Medical Colleges in Cincinnati, October 23-25.

Dr. Walter E. Vest of Huntington, West Virginia, was a recent college visitor.

News from University of Virginia, Medical Department.

A first-year class of sixty-nine students was admitted to the Department of Medicine for the session 1939-40.

The following additions have been made to the Medical Faculty for the session 1939-40: Dr. Eugene M. Landis, Professor of Internal Medicine and Head of the Department; Dr. Samuel A. Vest, Associate Professor of Urology; and Dr. T. S. Englar, Associate Professor of Public Health and Hygiene. Drs. G. B. Arnold, J. N. Williams and James Pettis have been appointed Associates in Neuro-Psychiatry.

Dr. Vincent Archer served as instructor in two courses offered by the American Roentgen Ray Society at a meeting in Chicago from September 19 to 22.

Dr. James Edwin Wood led a round table discussion on the topic of Hypertension, Nephritis and Congestive Heart Failure at the annual fall meeting of the Southwestern Virginia Medical Society in Roanoke, Virginia, on September 21.

Two Neuro-Psychiatric wards with a total of forty-one beds providing modern facilities for diagnostic study and treatment of mental and neurological diseases were opened on October 2. This addition has been named the John Staige Davis Neuro-Psychiatric Wards 1 and 2 in honor of a former member of the Medical Faculty. The addition was made possible through the gift of $82,000 from Paul Goodloe McIntire of New York City and a P. W. A. Grant of $68,000.

News from the Jefferson Medical College of Philadelphia.

The 115th annual session was inaugurated September 20, 1939, with Mr. Robert P. Hooper, president of the Board of Trustees, presiding. The introductory lecture was delivered by Dr. David M. Davis, professor of genito-urinary surgery, on "Self-reliance and the Medical Curriculum".

The total enrollment is 498. Of this number, 145 are new students; 135 admissions to the first-year class, and ten admissions to the third-year class.

The members of the first-year class were prepared for medical study in sixty different institutions; all having completed four years of college work and received a bachelor's degree before being admitted to the medical course.

Geographically, thirty-two states, insular possessions and foreign countries are represented, as follows: Pennsylvania, New Jersey, North Carolina, Ohio, Delaware, West Virginia, Rhode Island, Massachusetts, New York, Indiana, Maine, Maryland, California, South Carolina, Connecticut, Michigan, New Hampshire, Illinois, Missouri, Georgia, Idaho, Alabama, Kansas, Florida, New Mexico, Kentucky, Mississippi, Washington, Montana, Iowa, Tennessee, and the District of Columbia, Puerto Rico, the Territory of Hawaii, and the countries of Persia and Korea.

Announcement was made of the election of Dr. James R. Martin as James Edwards Professor of Orthopedic Surgery succeeding Dr. J. Torrance Rugh, who was made emeritus professor of orthopedic surgery.

Dr. Linwood D. Keyser,

Roanoke, was a guest speaker at the fourteenth annual meeting of the North Carolina Urological Association held at Sedgefield Inn, Greensboro, October 8 and 9, and addressed the association on "Etiological and Clinical Considerations in the Management of Urinary Calculi".

Dr. C. P. Jones, Jr.,

Who was for a time connected with county health work at Lexington, recently located at Kinston, N. C., where he is engaged in general practice.

The Children's Memorial Clinic,

A child guidance clinic of Richmond, celebrated its fifteenth anniversary on the evening of October 23, on which occasion, Dr. Milton E. Kirkpatrick of the National Committee for Mental Hygiene discussed the subject of Child Guidance in the World of Today. Following his talk, there was a moving picture, "Four Neighbors", portraying the study and treatment of four cases in a Child Guidance Clinic.

Following a survey which demonstrated that the facilities then existing were inadequate for the physical and mental examination of children, this clinic was established by patients, friends and admirers as a memorial to the late Dr. McGuire Newton. Dr. Basil B. Jones was its first director and was soon given the help of Dr. George H. Preston as clinic psychiatrist. Several years later, both resigned to go into other fields of service, and Dr. Harvie DeJ. Coghill became Director-Psychiatrist on April 1, 1928, which position he has since held. The work of the clinic has been more than was anticipated, for the size of its staff, and efforts are being directed toward enlarging the staff or limiting intake.

Personnel Notes from State Health Department.

Dr. C. L. Riley, Health Officer, has tendered his resignation, effective October 1, 1939, to enter private practice and will be succeeded by Dr. H. Garnett Snead, who has been the Assistant Health Officer of Arlington County.

Dr. Beverly L. Holladay has succeeded Dr. H. Garnett Snead as Assistant Health Officer of Arlington County, effective September 20, 1939.

Southern Tuberculosis Conference.

Dr. Dean B. Cole, Richmond, and Dr. W. Atmar Smith, Charleston, S. C., were elected members of the governing board of this conference at its meeting in Charleston, S. C., in October. Dr. Paul A. Turner of Louisville, Ky., was elected president. The 1940 meeting will be in Monroe, La., in October.

North Carolina State Medical Journal.

In the editorial columns, a welcome is extended to our new neighbor—the official publication of the Medical Society of the State of North Carolina. We are advised that Dr. T. W. M. Long, Roanoke Rapids, secretary of the Society, will be its business manager, and Dr. Wingate M. Johnson, Winston-Salem, is to be the editor.

Dr. C. I. Sease,

Richmond, announces the removal of his office on October 1, to 505 Professional Building.

Dr. Albert J. Russo,

Class of '38, Medical College of Virginia, who interned the past year at the U. S. Marine Hospital, Baltimore, Md., is now physician to the CCC Camp at Woolwine, Va.

Graduate Course in Ophthalmology and Otolaryngology.

The Fourteenth Annual Spring Graduate Course in Ophthalmology and Otolaryngology of the Gill Memorial Eye, Ear and Throat Hospital will begin in Roanoke, on Monday, April 1, 1940. The following doctors will appear on the program:

Dr. Harry R. Slack, Jr., Baltimore, Md.
Dr. C. C. Coleman, Richmond.
Dr. Chevalier L. Jackson, Philadelphia, Pa.
Dr. D. Blair Sulouff, New York, N. Y.
Dr. C. R. Straatsma, New York, N. Y.
Dr. Webb W. Weeks, New York, N. Y.
Dr. Grady Clay, Atlanta, Ga.
Dr. Peter C. Kronfeld, Chicago, Ill.
Dr. Wendell L. Hughes, Hempstead, Long Island.
Dr. Frank B. Walsh, Baltimore, Md.
Dr. Dean M. Lierle, Iowa City, Iowa.
Dr. Karl S. Blackwell, Richmond.
Dr. Lyman Richards, Boston, Mass.
Dr. William F. Rienhoff, Baltimore, Md.

Dr. Riggin Honored.

Dr. I. C. Riggin, State Health Commissioner was elected secretary-treasurer of the International Association of Medical Health Officers, at its meeting in Pittsburgh, the middle of October, this being held in connection with the American Public Health Association.

Dr. E. V. Famiglietti,

Formerly of Grundy, is now located at 116 Fourth Street, Front Royal.

Civil Service Examinations.

The United States Civil Service Commission announces open competitive examinations for Senior Medical Officer, Medical Officer, and Associate Medical Officer. Applications must be on file with the Commission at Washington, D. C., not later than November 13. Application forms may be obtained from the Secretary, Board of United States Civil Service Examiners, at any first-class post office, or from the Commission in Washington, D. C.

Dr. and Mrs. Richard B. Nicholls,

Norfolk, announce the birth of a daughter on August 14. Mrs. Nicholls is the former Dr. Aurelia Gill, of Richmond, a graduate of the Medical College of Virginia, class of 1935.

Advances in Syphilis Control.

Dr. R. A. Vonderlehr, Assistant Surgeon General in charge of the Division of Venereal Diseases, U. S. P. H. S., has announced that more than five and a half million blood tests for syphilis were made in the United States during the past fiscal year. In 1930, only 1,632,083 blood tests were reported. The number of clinics treating patients during the past year totaled 2,405, or an increase of 287 per cent over 1930. During the fiscal year, 659 more clinics reported to the Service than during 1938. The number of doses of the arsenical drugs used for treatment has risen to 10,656,253, or 84 per cent greater than for 1933. There were 605,631 tests reported for gonorrhea, or an increase of 73 per cent over 1930. This improvement is attributed, in large measure, to Federal funds made available to the States by the Venereal Disease Control Act of 1938, which stimulated additional appropriations by State and local governmental units.

Dr. S. E. Massey,

Recently at Freeman, W. Va., is now in Lakeland, Fla., for the winter.

Dr. Micajah Boland,

Commander, (MC), U. S. Navy, Retired, has been ordered back to active duty at the Naval Training Station at Norfolk. He has recently been in New York City where he was with the Medical Department of the World's Fair.

Dr. Russell M. Cox

Was recently made medical director of the schools of Portsmouth, succeeding Dr. Joseph Grice, resigned.

Dr. H. Hudnall Ware,

Richmond, was the guest speaker before the Obstetrics Section of the Norfolk County Medical Society on October 23, his subject being "Prenatal Care and Late Toxemia of Pregnancy".

The Chesapeake and Ohio Railroad Surgeons

Met in annual session at White Sulphur Springs, W. Va., October 20 and 21 with, as usual, a good attendance. Dr. M. J. Payne, Staunton, was elected president for the coming year, Dr. Clarence Porter Jones, Newport News, vice-president, and Mr. G. E. Meanley, Richmond, was re-elected secretary-treasurer. Dr. J. M. Emmett, Clifton Forge, is chief surgeon.

The American Board of Ophthalmology

Announces written examination, March 2, 1940, in various cities throughout the country, this to be the only written examination that year. All applications must be received before January 1, and all applicants must pass satisfactory written examination before being admitted to oral examination. First of the oral examinations will be held in New York, June 8 and 10, the Fall examination to be announced later. Candidates planning to take the June examination must file case reports before March 1. For application blanks, write at once to Dr. John Green, 6830 Waterman Avenue, St. Louis, Missouri.

Dr. Outland Honored.

At the recent annual meeting of the American School Health Association in Pittsburgh, Dr. Charles L. Outland, Richmond, was elected and installed as President. This Association is composed of school health officers and physicians from the United States and Canada and has a membership of about 2,000.

Obituary Record

Resolutions on Dr. J. M. Bailey.

At a called meeting of the Hopewell Medical Faculty the following resolutions were adopted:

WHEREAS, an Ever Wise Providence has removed from our membership, our beloved colleague, Dr. John M. Bailey, who for many years has been one of the leading physicians in our city, and whose knowledge of medicine and love of his profession has commanded the respect and admiration of all of us that we shall always revere his memory;

BE IT RESOLVED, That in his death, the medical profession of our community has sustained a great loss;

BE IT FURTHER RESOLVED, That we tender our sympathy to the family of our deceased associate in their bereavement.

BE IT FURTHER RESOLVED, That a copy of these resolutions be spread upon the minutes of our association, a copy to be sent to the family, and to VIRGINIA MEDICAL MONTHLY and *The Hopewell News*.

O. L. JONES,
T. E. ARMSTRONG,
W. M. PHIPPS, *Chairman*.

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A bambino from the Foundling Hospital, Florence, Italy,—A. della Robbia

Glisson, writing in 1671, described an ingenious use of swaddling bands — "first crossing the Brest and coming under the Armpits, then about the Head and under the Chin and then receiving the hands by two handles, so that it is a pleasure to see the Child hanging pendulous in the Air . . . This kind of Excercise . . . helpeth to restore the crooked Bones. . . ."

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"This is observed to happen more in the neighborhood of Rome than in other places," he wrote. "If no one oversees the infant's movements, his limbs do in the generality of cases become twisted. . . . Hence, when he first begins to sit he must be propped by swathings of bandages. . . ." Hundreds of years later swaddling was still prevalent in Italy, as attested by the sculptures of the della Robbias and their contemporaries. For infants who were strong Glisson suggested placing "Leaden Shooes" on their feet and suspending them with swaddling bands in mid-air.

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CONTENTS

The Treatment of Parkinsonism with a Preparation of Belladonna Root. A Preliminary Report. R. Finley Gayle, Jr., M.D., Richmond, Va. 707

Fistulizing Cicatrices and Prolapse of the Iris Following Imperfect Healing of the Incision for Extraction of Cataract. Daniel B. Kirby, M.D., New York, N. Y. 711

The Many-Sided Problem Presented by Fibroid Tumors. W. Lowndes Peple, M.D., Richmond, Va. 716

Anxiety Neuroses. Roger S. Cohen, M.D., Washington, D. C. 719

Euthanasia. W. M. Bowman, M.D., Petersburg, Va. 723

The Premature Infant. Wm. F. Burdick, M.D., F.A.A.P., Washington, D. C. 729

The Relation of State Hospitals to Out-Patient Clinics for Mental Diseases. H. C. Henry, M.D., Richmond, Va. 731

Report of Five Hundred Cases of Varicose Veins—Injection Treatment With and Without Ligation. J. Tecumseh N. McCastor, B.S., M.D., and Mary Cousins McCastor, B.S., M.D., New York, N. Y. 735

Paroxysmal Hemaglobinuria—Report of Case in a Child Four Years Old. Joseph T. Phillips, Jr., M.D., and Paul Hogg, M.D., Newport News, Va. 737

Jaundice in Typhoid Fever—A Case Report. Paul Kimmelstiel, M.D., and Nathan Bloom, M.D., Richmond, Va. 740

Paget's Disease of the Bone in the Field of Oto'aryngology. G. B. Trible, M.D., F.A.C.S., F.I.C.S., Washington, D. C. 742

The Socialization of Children James N. Williams, M.D., Richmond, Va. 747

CORRESPONDENCE 751

MISCELLANEOUS 752

PUBLIC HEALTH STATISTICS 753

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA 754

TRUTH ABOUT MEDICINE 756

BOOK ANNOUNCEMENTS 757

EDITORIAL 759

DEPARTMENT OF CLINICAL AND MEDICAL EDUCATION OF THE MEDICAL SOCIETY OF VIRGINIA 761

PROCEEDINGS OF SOCIETIES 762

NEWS NOTES 762

OBITUARY RECORD 766

INDEX TO ADVERTISERS—Advertising Page 6

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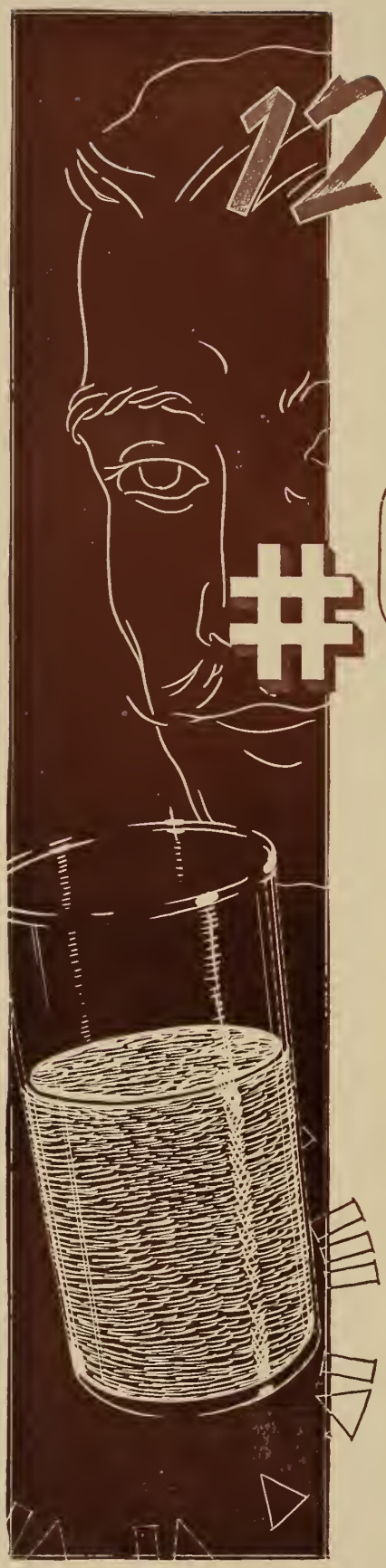

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THE TREATMENT OF PARKINSONISM WITH A PREPARATION OF BELLADONNA ROOT.

A Preliminary Report.*

R. Finley Gayle, Jr., M.D.,
Professor of Neuropsychiatry,
Medical College of Virginia,
Richmond, Virginia.

The chronic degenerative diseases of the central nervous system for the most part are amenable only to symptomatic treatment. The subject of this paper is no exception. For years we have used various drugs and other remedies to combat the disagreeable and disabling symptoms of Parkinson's disease, with only a slight measure of success. Hydrotherapy, exercises, massage, and other forms of physiotherapy; thyroid and parthyroid gland extracts; stramonium, hyoscine, benzedrine, atropine and cobra venom have been used and all have a place in the treatment of this disease.

Historically, it is interesting to know how certain methods of treating disease were discovered. Some, as we know, were the result of painstaking hours of study and research, others are stumbled upon accidentally in scientific investigation, and still others are learned about through the most unscientific approach. An example of the latter is what makes this presentation possible.

Ivan Raeff, a plant collector in the Bulgarian village of Chipka, in 1926, described his treatment of Parkinson's disease with the extracts of belladonna root. He is said to have achieved considerable success and fame throughout Europe, so much so that the Queen of Italy became interested in his work with encephalitis and in 1935 established a special hospital for this disease in Rome. It was there that the Bulgarian method of treatment of Parkinsonism was studied clinically and pharmacologically by Panegrossi and Antolini-Frugoni.

The originial treatment, as outlined by Raeff, consisted of four packages of medicine which he gave to his patients with minute instructions about diet, habits, rest, exercise, sleep, bathing, et cetera. Most of the directions were ludicrous with the exception of those relating to exercise and the elimination of indulgencies of tobacco and alcohol, and other toxic ones from the habit regime. Medicinal package number one contained belladonna root; number two, animal charcoal; number three, pills consisting of bread dough, sawdust and nutmeg; and number four, calamus root. We will omit discussion of his plan of treatment save the use and administration of belladonna root extract.

For some months we have treated a group of thirty-five patients with both the degenerative or arteriosclerotic and the post-encephalitic types of Parkinsonism with a commercially prepared extract of belladonna root. We feel that we have achieved better objective and subjective results with its use than with other forms of therapy. The use of belladonna root extract in this condition is known as and will be spoken of hereafter in this presentation as the Bulgarian treatment of Parkinsonism.

The product which we used in the treatment of our cases was the belladonna root extract known as "Rabellon",* prepared and furnished us by Sharp and Dohme of Philadelphia. "Rabellon"* contains three milligrams of total alkaloids per cc. These alkaloids are chiefly atropine, scopolamine and hyoscyamine. The preparation is both in tablet and solution form, and the alkaloid concentration and proportion was found by analysis to be similar to the most effective extract of Bulgarian belladonna

*From the Department of Neuropsychiatry, Medical College of Virginia.

*0.1 milligrams total alkaloids is equivalent to about one drop of "Rabellon" or approximately ¼ tablet of "Rabellon". Consequently, one Rabellon tablet is equivalent to 0.5 milligrams.

root. The manufacturers first put the preparation out in liquid form, but later advised that this solution was less stable than the powder, and recommended the use of the preparation in tablet form. We started with very small doses, that is, one drop of the solution or one-fourth tablet of "Rabellon", gradually increasing it to the optimum dose of six or seven drops, or one and one-half tablets three times daily. Other investigators have used a larger quantity of the drug at a dose than we have, but our results were gratifying with the smaller amount, and the patients had less discomfort as a result of its use.

Some of the alkaloids of belladonna root have been used for years in Parkinsonism with varying but not entirely gratifying results. Scopolamine has been used longest, perhaps, and is not without virtue in ameliorating certain symptoms in some individuals. The use of large doses of atropine in this condition was begun in 1930 and it has been found that the individual with post-encephalitic Parkinsonism is more tolerant of its use than those not so affected. Bremer, Roemer, and Kleeman in Germany, and many physicians in this country have each treated these cases with massive doses of atropine with encouraging results. One of them gave a patient as much as 120 milligrams of atropine a day without toxic effect. The extreme dryness of the mouth, the dilatation of the pupils with blurring of the vision, and the gastro-intestinal disturbances are frequently so disagreeable as to make large doses of atropine impossible. In this respect the Bulgarian treatment is certainly superior.

Von Witzleben reported that the extract of the whole root was not only more efficacious, but also less toxic than the individual alkaloids. Neuwald and his co-worker found the effects more rapid if the extract of the whole root was used.

There appears to be a difference of opinion as to the source of the best belladonna root—some prefer that from the neighborhood of Chipka, Bulgaria, but others think that it makes no difference where the root is grown. It is possible that climate, soil and other similar circumstances may influence the alkaloidal content of the root, but this should be overcome by the proper chemical handling of the manufacturer. There is no reason why the drug should not be made biologically uniform, regardless of the source of the root. Vollmer interchanged extracts from Bulgarian and American belladonna root in the same patient without affecting his results. Denis Hill found no difference in his clinical results when he substituted the English for the Bulgarian belladonna root.

There seems to be a difference in the tolerance of the extract of belladonna root in various individuals, and for that reason it is wise to increase the dose in these patients quite slowly. Old persons and those with generalized and particularly those with cerebral arteriosclerosis, tolerate the drug poorly; hot weather and temperature rises in individuals, as well as bad habits of eating and drinking, seem to lower the patient's resistance to the drug. If the patient tolerates the drug well, it is remarkable how large an amount can be taken care of by certain individuals without toxic effect. Naturally, the drug is contra-indicated in glaucoma.

After all, what we are principally concerned with here is whether this so-called Bulgarian treatment of Parkinsonism presents anything new or anything better than we have heretofore used. Quoting from Vollmer's article—"What is new is the use of belladonna root instead of belladonna leaves, and the use of a natural compound instead of single alkaloids. The progress lies first of all in the striking clinical results. The results are superior to those with high atropine doses, and are achieved by far smaller doses of total alkaloids. The average dose in the Bulgarian treatment is three milligrams of total alkaloids, while at least fifteen milligrams are required in the high atropine dose treatment. Consequently, fewer by-effects occur and severe damage, as, for instance, megacolon formation, is less to be feared, and actually has never been observed with the Bulgarian treatment."

There has been no published work in America on this subject other than that of Hermann Vollmer which appeared in the July-August, 1939, *Journal of the Mount Sinai Hospital,* and two more recent ones by F. M. Forster in the October number of the *Pennsylvania Medical Journal* and another by Josephine Neal in the October number of the *New York State Journal of Medicine.* Vollmer reported twenty-six patients with Parkinson's disease having been treated with "Rabellon", sixteen of whom were diagnosed post-encephalitic Parkinsonism, and the remaining ten were of the arterio-sclerotic type. He and other workers in this field state that the post-encephalitic type were much more benefited by

the Bulgarian treatment than the others, although some of the degenerative types show striking improvement by its use. This, likewise, has been our experience.

Among his sixteen post-encephalitic cases, fourteen improved both objectively and subjectively—in some cases improvement was marked. Some of them took up their former employment, he states, and lost all symptoms. One, a concert singer, had gone back on tour after several years of incapacity and unemployment. Only one was unimproved; one discontinued the treatment after a few days. Among his arterio-sclerotic cases, one discontinued treatment, two were unimproved, and seven showed more or less improvement. One of them felt better, but showed no objective change. Another, with signs of senile dementia, only slightly improved objectively, but denied being better.

There have been more than two thousand cases of post-encephalitic Parkinson's syndrome treated with the belladonna root extract, or the Bulgarian treatment, in Europe. A hospital was opened in Germany, in 1937, to serve exclusively as a center for this method of treatment. Their results have been uniformly good and some investigators have made the rather remarkable claim that 80 per cent of their patients so treated have been able to go back to work. A great majority of those patients came from very poor surroundings, were little understood in their homes and in the community, were poorly fed, and when transferred to the luxurious surroundings of a hospital, especially designed and operated for them by the Queen of Italy, it is likely that the change of living conditions and the psychological effect of it all had a profoundly beneficial influence upon many of them which could not have been accomplished without this aid. Neuwahl and Fenwick, in their article on this subject, are positive in their statement that the Bulgarian treatment is far superior to any other.

In the series of cases which we are reporting here, there were thirty-five typical cases of Parkinsonism. Thirty of them were classified as post-encephalitic and five as the degenerative type. Of the thirty in the post-encephalitic group, eleven were diagnosed post-encephalitic Parkinsonism with psychosis, and of the five in the arterio-sclerotic group, one was thought to be psychotic. Of the group, twenty-five were white and ten were colored. There were twenty-one male patients and fourteen female. The youngest age at which treatment was begun was twenty-seven and the oldest sixty-eight. All of the patients had had symptoms of the disease for more than three and one-half years before treatment was started, and in one patient symptoms were first noticed following the influenza epidemic in 1918. Eighteen of the patients were committed inmates of mental hospitals, and of this group a number were bedridden, were unable to feed themselves and were more or less helpless. The dose of "Rabellon" varied from approximately two milligrams of the total alkaloids in twenty-four hours to a maximum of five and one-half milligrams in the same period. We did not attempt to increase the dose to the point of the patient's tolerance, but stopped its increase as soon as definite improvement took place, or if the patient complained of disagreeable signs of dryness of the mouth and blurring of vision. Our results were startling and most gratifying. We wish to report very conservatively that with the possible exception of one patient, all of the post-encephalitic cases showed varying degrees of improvement from slight to marked. It is not only true that these patients felt better, but that there was definite and in some cases a decided objective improvement. The cases with psychosis accompanying their Parkinsonism were all improved. Of the arterio-sclerotic patients, two of the five showed slight improvement. One of these who had improved and one who had shown no improvement felt that they got more relief from the stramonium leaves than from the "Rabellon" and discontinued the treatment in a short time. All symptoms in every patient returned to as great a degree as they originally were after the withdrawal of the Bulgarian treatment. Each of our patients with oculo-gyric crises was benefited materially by the treatment, and many of the helpless and completely or partially bed-ridden patients after a short period of treatment were able to feed themselves and look after their wants. The patients used in this experiment came from the out-patient department of the hospital division of the Medical College of Virginia, from my private practice, (two of them from the private practice of colleagues) and others through the courtesy of the Clinical Director and Superintendent of the Western State and Central State Hospitals.

It has been our experience that if improvement takes place at all, it is usually prompt. The effect of the drug is generally felt within a few days, and

if no improvement is noted within a period of two weeks, it is thought inadvisable or certainly unnecessary to continue its use longer. Recently a minister who had had the disease for more than ten years, and who was beginning to be definitely handicapped by it, came into my office after a two weeks' trial of "Rabellon," and said, with a smile: "Doctor, I believe you have something here." One of my colleagues who handled the scheduled treatment of twelve of my reported patients, writes: "May I say that the results obtained with this drug in the treatment of post-encephalitics are very dramatic. . . . The patients themselves beg for a continuation of the treatment and are most appreciative of the relief from the tremors, insomnia, etc. . . . The most striking results were seen in more physically disabled patients—the drug seemed to snap these people up to such an extent that they were able to care for their personal wants and live a more normal existence. . . ."

Many of these patients are too enthusiastic about their improvement and they should be warned that the amount of improvement is probably limited, as they are doomed to disappointment if they expect too much—many expect a complete cure. It is important to warn the patient early in the treatment of this, as in many other chronic illnesses, that the treatment will have to be carried on throughout life. In our series it was noted that there was almost an immediate return of symptoms when treatment for any reason was discontinued. However, Neuwahl and Fenwick reported that they were able to interrupt treatment for days or weeks in some cases without the reappearance of symptoms.

It may be interesting to theorize as to what effect belladonna root preparations may have on the nervous system causing amelioration of symptoms in these patients. In spite of the known action on the central nervous system of belladonna preparations, it is possible that the beneficial effect of these alkaloids is due to their peripheral rather than to their central action. We know that atropine prevents the action of acetylcholine and hence acts as a depressant to the parasympathetic nervous system. The fact that acetylcholine does not act normally at the myoneural junction when belladonna root extract is given, may decrease muscle tone and thereby reduce muscle spasticity and tremors just as physostigmine conversely prolongs the action of acetylcholine and finds practical application in the treatment of myasthenia gravis.

CONCLUSIONS

1. The Bulgarian treatment is more efficacious in the post-encephalitic type than in the degenerative type of Parkinsonism.
2. There is a return of symptoms when the drug is withdrawn.
3. There are few unpleasant symptoms and no serious ill-effects from the use of belladonna root extract.
4. Mental symptoms are improved by this treatment.
5. Our results with belladonna root extract have been more gratifying than with other drugs commonly used in the treatment of this condition.

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Professional Building.

FISTULIZING CICATRICES AND PROLAPSE OF THE IRIS FOLLOWING IMPERFECT HEALING OF THE INCISION FOR EXTRACTION OF CATARACT.*

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The healing of wounds is an interesting subject. In intraocular surgery it is desirable that primary union be effected. The eye will not tolerate infection or granulation tissue. The nature of the cornea and sclera tissues is such that incisions are relatively difficult because of their density and hardness and accurate apposition of the edges of the wound is difficult because of the loss of fluid which normally keeps these tissues under tension. If sutures are used they are not always exactly appositional, being considered so only when used as track sutures and inserted before the section.

THE CAUSES OF IMPERFECT HEALING

1. Low general vitality including faulty body chemistry and more particularly low eye tissue vitality or dystrophy.
2. Improper apposition of wound edges.
3. Increased introcular or retrobulbar pressure.
4. Inclusion of foreign tissues or substances between wound edges.
5. Infection and inflammation.

Some of the contributing causes are: conditions such as senility, diabetes, vascular hypertension, low vitamin and mineral content of tissues, neuro-paralytic and anesthetic and dystrophic conditions.

Interesting as are all of the conditions which cause imperfect healing of the incision for extraction of cataract, let us for the purpose of this discussion limit ourselves to the problem of imperfect healing which entails leakage of aqueous or prolapse of iris from the wound. This involves a discussion of the matter of hypotony or low intraocular tension or pressure. The loss of fluid at the time of the incision and the continued seepage of fluid with a corresponding diminution of contents of the globe may result in a number of pathological changes in the structures of the eye associated with hypotony.

Any traumatic or surgical wound of the sclera or cornea may immediately reduce the pressure to that of the surrounding atmosphere. The normal rigidity of the cornea and sclera causes these tissues to maintain their shape even after the Graefe section. The cornea and sclera in some patients are, however, so flaccid that they crumple or wrinkle and even fall in after a perforating wound such as a cataract section. This is more apt to happen with the half circumference section than with the two-fifths. A flaccid cornea, however, will not behave in this manner if there is undue posterior segment pressure. The sign of crumpling or falling in of the cornea therefore indicates a state of posterior segment hypotony which may mean that operative manipulations may be conducted with an assurance that could not be had if there were evidences of increased intravitreous or retrovitreous pressure.

Hypotony continues after the average cataract extraction until the operative wound is well sealed and water-tight, and the fluids and tissues within the eye have adjusted themselves to the post-operative conditions. This transient hypotony is of no pathologic significance. The period of time required for return of normal tension varies with the individual. When hypotony persists for weeks and months after operation, it must be viewed with concern. Needless to say, when the condition is produced solely by leakage through a fistulous tract, the prognosis is better than when there is no tract. The former may be remedied by the closure of the fistula whereas the latter is obscure in origin and with no indication for beneficial treatment.

No one description will fit all cases of hypotony due to a fistula but when occurring some time after cataract extraction there may be found a free escape of fluid from the aqueous chambers to the conjunctival sac, but usually there is a bleb or a cystic vesicular fistulizing cicatrix and more or less widespread edema of the subconjunctival tissues. Application of a blunt probe will demonstrate the area and degree of water-logging. The cornea is free from edema unless the endothelium and Descemet's membrane have both been injured. There may be folds or wrinkles in Descemet's membrane. The aqueous may show increased protein content as may be demonstrated by the increased relucency of the anterior

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chamber fluid. There may be detachment of the choroid or of the retina, although the former is more frequent and offers a better prognosis. There may be papilloedema with usually a low degree of elevation, but this may be as much as one millimeter. The retinal veins are usually congested. Hemorrhages are not usually seen from this cause alone.

It will be interesting to consider the featues which are striking individually:

I. *Folds and Wrinkles in Descemet's Membrane.*—These may be due to hypotony alone or they may be due to traumatic inflammatory or chemical irritation of the endothelium with resultant edema about Descemet's membrane. If Descemet's membrane is injured, sliced or detached, water-logging of the posterior corneal lamellae may result. Flaccidity or a lack of proper resistance of the tissue of the cornea may cause it to crumple because of non-support. Striped keratitis is a more or less common finding after cataract extraction. I attribute it, first, to dystrophy; second, to inflammation, or chemical reaction and to trauma.

II. *The Increased Protein Content of the Aqueous.*—Secondary aqueous, that which is formed after primary aqueous is withdrawn always contains more protein than the primary. If there is any inflammatory reaction the aqueous contains still more protein. If the aqueous is constantly seeping away the new aqueous which is formed is always in the class of secondary aqueous. Floating cells are not usually present unless inflammation exists.

III. *Detachment of the Choroid.*—This is frequent in cases of slow reformation of the anterior chamber after cataract operations. Fuchs found it in 4 per cent of his cases after cataract extraction. O'Brien reported its frequent occurrence in cases of intracapsular extraction. He examined his cases immediately after operating and again the early days following. I have personnally not seen the condition in the high percentages reported by O'Brien. Fortunately the hypotony and detachment of the choroid are nearly always corrected as soon as the operative wounds have healed. Some have persisted for several months before complete restoration of function.

Anderson thought that detachment of the choroid occured when the intraocular pressure became less than the choroidal capillary pressure. Normally they are balanced, or only sufficient difference exists to effect an inter-change of fluid. If the intra-vitreous pressure is so low that it is less than that of the choroidal capillaries, hyperemia and a sucking out of the capillaries of serum or actually of blood may occur. The former causes detachment of choroid by fluid, the latter by blood.

IV. *Detachment of the Retina.*—This fortunately is an infrequent complication after cataract extraction but when it does occur, the prognosis is rather poor particularly when associated with hypotony, imperfectly healed incision or prolapse of vitreous into the anterior chamber.

Dunnington and Macnie have shown the grave significance of hypotony in cases of *detachment of the retina.* Biegelman considered that the absorption of fluid from the vitreous by the chorio-capillaries through a retinal hole may cause result in lowered tension. Hoyt (quoted by Anderson) reported acute hypotony occurring on the sudden enlargement of a retinal tear. The prospect of the surgical reattachment of the retina with restoration of function is very poor in cases where low intraocular pressure exists and it is particularly poor in cases of hypotony after cataract extraction.

V. *Papilloedema in Hypotony and Imperfectly Healed Incisions.*—The mechanism of the production of papilloedema in hypotony and leaking or imperfectly healed incision affords interesting ground for speculation. Anderson said that it may be due to an upset in the normal balance of pressure, a reversal of the relationship between intraocular pressure and intracranial pressure. To ensure the escape of lymph from the eye, the former is usually the higher. When, however, it falls to the level of atmospheric pressure, this lymph cannot escape and so a mild papilloedema develops, which can even obscure a glaucomatous cup. Parker showed that in cases of increased intracranial pressure conducive to papilloedema, the latter occurred earlier and to a greater degree in the eye which had the lesser degree of intraocular pressure. In his experimental work, he trephined one eye in a normal animal and produced hypotony and then by raising the intracranial pressure demonstrated the same phenomena as were found in his clinical cases. I have not seen papilloedema develop or signs of degeneration of the eye occur in moderate degrees of hypotony which has developed following operations for cataract or glaucoma as for example when the new Schiotz instrument recorded the tension as being

6 or 8 or 10 mm. of mercury. I have seen it, however, in several cases where the tension was 4 or less.

Measures Designed to Prevent Imperfect Healing of Incisions

In the extraction of cataract, the accurate apposition of the edges of the wound, the use of sutures, particularly the corneo-scleral type which insure this by their being placed before the section is made, the avoidance of incarceration and prolapse of the iris*; the avoidance of manipulation over the sclera and trauma to the ciliary body, the avoidance of the loss of vitreous, prevention of separation of the edges of the wound by conjunctival epithelium, lens capsule, iris or foreign material are all measures which are indicated in the prevention of fistulizing cicatrices after cataract surgery.

Report of Cases

Case 1.—Cystic Fistula After Cataract Operation.—A. E., white female of fifty-eight years, whose right eye showed a cystic fistula with 1 mm. hole in the centre of the coloboma after an extracapsular extraction of cataract. Tension 8 mm. Schiotz. No incarceration of tissue visible. No signs of deterioration of structure or of function of the eye. Under local anesthesia, the cystic conjunctiva was dissected away, the edges of the hole curetted and a conjunctival and Tenon's capsule flap brought over the area. The immediate result was satisfactory with a rise of tension to 18 mm. Hg. Schiotz as measured one month after operation. Unfortunately this patient has been lost sight of so that final observation could not be made. This patient had no incarceration prolapse of iris tissue. In most cases in which this complication is present disturbances of intraocular pressure are frequent and while hypertony or secondary glaucoma is common, a greater or lesser degree of hypotony may be present. The author's practice has been to reoperate on such a condition as soon as it is discovered if the patient is cooperative and the eye not too tender, dissecting the conjunctiva, replacing the iris if possible or doing an iridectomy and replacing the pillars. In one case, where surgery was not possible, the prolapsed tissue was removed by careful repeated applications of trichloracetic acid. An old prolapse with hypotony may be treated surgically by excision of the cystic, vesicular, fistulizing cicatrix, curetting the epithelium or slicing off the anterior corneal layers and then bringing into apposition a conjunctival and Tenon's capsule flap.

It is desirable that rapid and accurate healing of the incision for cataract extraction take place and that no leakage occur. If the anterior chamber is flat after two or more days we may well be concerned. We may do nothing more than instill atropine 3 per cent and replace the dressing, but if at the end of six or seven days this condition persists I believe we should anesthetize the eye and instill fluorescein and look for the leak. If the patient is uncooperative it will be best judgment to leave the eye alone, but if the eye is not tender and the patient is calm, we will use local anesthesia and after fashioning an apron flap bring it down over the corneal wound. The latter may need freshening with the curette to promote union. The use of this procedure does no mean that the apron flap is to be used or recommended in all cases of cataract extraction as this is neither desirable nor necessary.

Case 2.—Cystic Cicatrix after Cataract Extraction with Normal Intraocular Tension.—A. T., a white female of seventy-four years, had bilateral intracapsular cataract extractions with 20/20 vision in each eye with corrective lenses. In the right eye there was a cystic prolapse of the right pillar of the coloboma of the iris. A small area of the subconjunctival tissue near the cyst was edematous. The intraocular tension was 17 mm. Schiotz in the right eye and 19 mm. in the left eye in which the wound was completely healed. It was thought best not to interfere in this case because if the fistula were closed, the intraocular tension might well rise above the normal and produce undesirable sequelae.

Case 3.—Recurrent Opening of Fistulous Area in Cataract Section.—C. T., white male of sixty-two years, had had an extracapsular extraction of cataract by a colleague four months prior to consultation with the author. He complained that while his vision had been well restored by surgery and lenses, he had suffered on three occasions since leaving the hospital great diminution of vision after an escape of warm water from his eye. He was told to report immediately when this happened again. He did so and the anterior chamber which had been of average depth on the previous examination was now collapsed, the tension was very low and the wound

*Peripheral iridotomy or iridectomy, maintenance of the sphincter of the iris, and the use of eserin as a miotic in all cases of intracapsular extraction even where a complete iridectomy has been performed all help to reduce the incidence of these complications.

which had appeared completely healed previously was now leaking at the temporal side. The use of fluorescein demonstrated a streaming of fluid. At this point, upon advice, my colleague dissected a flap of conjunctiva, curetted the fistulous area and covered it firmly and secured complete and permanent healing. There is a temptation to use the actual or chemical cautery in such cases but it is probably not necessary if the edges of the wound are freshened with the curette.

Case 4.—Case of Hypotony following Cataract Operation with no Evidence of Fistulous Drainage.—A case in point is that of E. C., a white woman of sixty-eight years, whose pre-operative eye examination disclosed immature cortico-nuclear cataract in each eye with vision of 20/50 in the right eye and 20/100 in the left eye. The intraocular tension in each eye was 19 mm. Hg. (Schiotz). The cataract was removed from the left eye by the intracapsular technique through the round pupil on January 24, 1939. Two drops of an aqueous solution of eserin sulphate, 1 per cent, were instilled just before the dressing was applied. Healing was uneventful except that the anterior chamber remained shallow and the tension of the eye was manifestly low. Atropine sulphate, 1 per cent, was used twice daily. No detachment of the choroid was observed. There was no inflammation. Three weeks after operation the vision of the left eye was 20/30 with corrective lenses. On February 18, the tension was too low to register with the Schiotz instrument and the anterior chamber was still shallow. Papilloedema of slightly more than one diopter was observed. The acceptance March 2, 1939, was O. S. + 11.50 Sph. + 2.00 Cyl. ax. 45 = 20/30+. On March 20, 1939, two months after the operation, the vision was 20/25+ and the tension of the left eye registered 11 mm. Hg. Schiotz. The anterior chamber had deepened. The papilloedema had decreased to one-half of one diopter.

Further Notes.—Transient hypotony such as this occurring after cataract operation and with a completely healed wound may be an expression of trauma to the ciliary body. The cases which endure longer periods of hypotony, with uveitis and final destruction of function and structure are familiar to all. Continued hypotony is a most serious sign with or without evidence of uveitis or the possibility of development of sympathetic ophthalmia.

Case 5.—The author has fortunately not had, as far as he knows, any of his operative cases go on to sympathetic ophthalmia but he has used the condition of hypotony as an added argument for enucleation in surgical cases which have not done well and in which in addition to the low tension there have been found, faulty light projection, precipitates on the cornea and other evidences of plastic inflammation. A case in point is that of G. C., white male of seventy-two years, a clerical worker who with immature cataracts needed more than the 20/100 and 20/40 vision which was the best obtainable for lenses for the right eye and left eye respectively. Intracapsular extraction was attempted but the capsule proved very friable and the operation was completed by expressing the nucleus. The loose cortical remnants were washed out with normal saline. Atropine sulphate 3 per cent aqueous solution was used upon the completion of the operation and at each dressing. It soon became evident that a low grade iridocyclitis was present. Synechia formed. The remaining cortex was moderate in amount. Recurrent hemorrhages into the iris tissue and into the anterior chamber occurred. The aqueous contained excess protein and many floating cells. Precipitates formed on the posterior surface of the cornea. Hypotony was pronounced. Non-specific protein in the form of typhoid antigen H was administered on six occasions with fever reactions. Finally, ten weeks after operating when the light projection had become faulty, and the precipitates had become arranged in a grossly manifest triangle, and there were folds in the iris as if the tissue were infiltrated and the intraocular tension was too low to register, the right eye was enucleated. There has been no inflammation of the left eye before or after enucleation of the right eye.

Examination of the microscopic pathologic specimens shows nodular infiltrations of the iris and ciliary body indicating a low grade uveitis but with none of the characteristics of sympathetic ophthalmia.

Trowbridge states that perforating wounds in the cornea or at the limbus are no less dangerous than wounds in the ciliary body from the standpoint of sympathetic ophthalmia, especially liable to result in sympathetic inflammation are eyes with unhealed wounds in any region. A soft, shrinking, exciting eye is usually found at the outbreak of inflammation in the fellow eye.

The Handling of Iris Prolapse During and After Cataract Extraction

In general, the considerations for the treatment of prolapse of the iris are as follows: If the iris prolapses on the edge or blade of the knife while the section is being made, withdraw the knife and complete the section with scissors. If the iris prolapses immediately after the section and the wound gapes, look for pressure from behind. It may be necessary to do a freer canthotomy. It may be possible to replace the iris easily but, if not, an iridectomy is necessary. It is a sign of imminent loss of vitreous and should be regarded as a warning sign and our operation conducted accordingly. It means that the vitreous has moved forward and that possibly a subchoroidal effusion of serum or blood has occurred.

Personally I prefer the simple extraction wherever possible and would use it when the pupil can be dilated to 6 mm. or more, sufficient to permit the passage of the lens. After a capsulotomy extraction, atropine or no drops are used, and after an intracapsular, eserin 1 per cent or no drops are used. The use of eserin in aqueous solution or in ointment seems to me to be a valuable adjunct either with the simple extraction or with peripheal or complete iridectomy. The anterior chamber reforms more rapidly on the average when the iris is drawn in out of the edge of the wound. I used to think this was due to the stimulation of the production of aqueous but now I think that while this may be a factor, the freeing of the wound of iris tissue which permits correct apposition promotes the early sealing of the incision and the reformation of the anterior chamber; when the iris is thus in place, it will not be extruded again until the anterior chamber reforms except by unusual happenings.

If iris prolapse is found at the first dressing within forty-eight hours or if it occurs at a dressing or between twenty-four hours' dressings due to springing of the wound and gushing out of aqueous, I believe that the patient should be calmed, the eye completely anesthetized and the iris tissue replaced with a spatula. Stroking of the iris will usually accomplish this. The eye is not unduly tender if treated at this early stage, but if the procedure is delayed, anesthesia is difficult to accomplish. The prolapsed iris, particularly in a simple extraction case, tends to be pushed further out and to dissect the tissues, widening the gap in the incision. This creates a condition which is difficult to cure at a later date. In such a case even though we cannot calm the patient or anesthetize the eye sufficiently we should cut the iris cyst so that the dissecting process will stop. General anesthesia, preferably preceded by avertin may be necessary.

It is important to prevent iris incarceration, for, in some cases, cicatricial tissue invades the iris tissue and pulls the good iris from the anterior chamber into the wound by contraction thus enlarging the coloboma.

If the iris prolapse is small and cystic and the tension is low after capsulotomy extraction, the vesiculated tissue may be dissected off the iris bulb, the latter freed by sharp dissection so that it may be drawn out and by section with iris scissors, the iris freed and permitted to drop into the anterior chamber. Freshening of the edges of the wound and a conjunctival flap will aid in the proper healing. If there is a definite fistulous hole into the anterior chamber, it will be necessary to follow more or less the operation devised by Dr. Wheeler for the relief of hypotony following the fistulizing trephine operation for glaucoma.

After intracapsular extraction, if the vitreous is not in the anterior chamber and if the hyaloid is well defined with the slit lamp microscope observed as being posterior to the plane of the iris tissue which is prolapsed, the same procedure may be adopted but if the vitreous is in the anterior chamber or near the prolapse, such a step should not be attempted. Rather the vesiculated conjunctiva and iris tissue may be destroyed by the careful application of an escharotic as for example, trichloracetic acid. Too much caution, however, cannot be exercised in the use of such an agent.

Summary and Conclusions

The causes leading to imperfect healing of the incision for the extraction of cataract are many. A number of them are avoidable and due precautions should be taken to prevent their occurrence and to minimize the effect of those which cannot be prevented.

The important effects and sequelae of imperfect healing of the incision for extraction of cataract are fistulizing cicatrices, prolapse and incarceration of the iris, folds and wrinkles in Descemet's membrane with resulting haze or opacity of the cornea, abnormal conditions of the aqueous humor, detachment

of the choroid, detachment of the retina, papilloedema and, as a remote result, possibly sympathetic ophthalmia or late secondary glaucoma.

Certain cases are cited which bring out some of these features. Sutures are important in the promotion of proper healing. If the anterior chamber has not reformed two or three days after cataract extraction, atropine cycloplegia is used and hope is held that the wound will close. If it has not done so after a few days more it will be well to use local anesthesia, remove the sutures and bring down an apron flap over the wound which may or may not need freshening with the curette. The employment of the apron flap in this condition does not mean that it is necessary or desirable in all cases of extraction.

If prolapse of the iris is present, the measures for dealing with this complication are outlined. The iris which has freshly prolapsed may be replaced. Older prolapses which are bound to other tissues by plastic exudate require dissection and excision. Care should be exercised in not permitting a dissecting prolapse to continue. There is no point in procrastinating in the face of such a problem. Rather the situation must be met, cooperation required of the patient and the imperfect healing of the wound and prolapse of the iris met in the best way possible. Delay will often result in a worse condition. A proper understanding of these problems and action based thereon may well result in a happy ending to cases of imperfect healing of the incision for extraction of cataract.

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THE MANY-SIDED PROBLEM PRESENTED BY FIBROID TUMORS.

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Time was, when we had a fractured bone, we set it with mind and fingers, or stretched it with weights and immobilized the part with sand bags or a fracture box and let it knit. And that was the end of it. But who has been happy setting fractures since we can visualize the fragments? Surely not I.

Time was, when a woman with a tumor came under our sphere of influence, we either took it out or we did not. But science has changed all that and we are often left in doubt as to what course to pursue in a given case, which means that we are not happy, for there can be no professional happiness in indecision and doubt. In my intern years I go back to the age of huge fibroids, just as our grandfathers remember huge pines and oaks, because these were of the original growth, both as to tumors and trees. None dared touch such tumors until their continued presence meant a menace to life. This was in the early stage of absorbable sutures and they were little trusted, and infected silk gave a world of trouble until it worked out. The serrenoeud was still in use.

It worked this way: The tumor was pulled out of the abdominal wound along with its tubes and ovaries, making as low a pedicle as possible. Through this two stout copper pins were thrust at right angles to one another and then a flexible phospho-bronze wire of great strength encircled the pedicle below these pins. This was tightened until the blood supply was controlled; then the tumor, ovaries, tubes and everything above the transfixion pins were cut away. There was a key, like an old-fashioned skate key, to tighten the loop, and we gave a tightening twist or two each day, until the pedicle sloughed away. Strange as it may seem the results were surprisingly good.

Many a year afterward have I seen women walking on the street on whom this operation had been done. I knew just how the lower body of the uterus was growing into the abdominal wound, and I wondered how they walked so easily, so smoothly, and so erectly.

Then, with dependable catgut came the era of the supravaginal and complete hysterectomy.

But there is a lot to fibroids; one hardly knows where to begin. But mark this, lest I leave it out or forget it, when you have worked long enough to have stuffed the pigeon holes of your memory so jam full of other people's troubles that no room is left for your own, then you will enjoy taking them out again. And how wonderfully revealing they are! They are revealing and enlightening just because

they are so personal and real. You might have read a book or a journal telling you all of this, but until it came home to you as a personal reality it failed to register.

That red-headed Johnson girl, attractive minx, had to "raise Cain" and make a scene once a month, and usually when you had an engagement—and they were engagements, not dates, in those days. Two of her sisters did the same thing. How you wished to God you could synchronize them and let them all break loose at the same time, but not they! They strung you along seriatim. All three of them married; all three suffered more or less, though they learned some self-restraint as years went by. None bore children, and each in her early forties developed a fibroid tumor of the womb. And it has taken me, and you too, all these years to put two and two together. There it was, a structural condition, the forerunner of fibroids, causing these Johnson girls infinite pain at their periods, denying them motherhood, and later bringing all three of them to the operating table.

Not every woman who has painful periods develops a fibroid in late life, but not many women with fibroids have failed to have dysmenorrhea. Suppose we could differentiate and tell those with beginning structural changes from the purely functional disorders. We might find a way to keep the Johnsons from ever developing tumors and even make mothers of them all.

There are so many problems that confront us when a woman comes with a tumor that we know to be a fibroid, that it may seem a little bewildering to try to put it all on paper. The age of the patient, her status in life, her social condition, her economic status—all play an important role in determining what we will or will not do in any given case. We will treat the same kind of tumor differently under different circumstances, and at different ages in similar circumstances. If a tumor is large and rises up to the umbilicus we would wish to take it out, and under most circumstances we would. But suppose she had a dangerous heart lesion, suppose she had lost blood until she looked all waxy—would we take it out? Not if we have attained the age of discretion. In a young woman we would take out the body of the uterus, and if the cervix and ovaries were sound we'd leave them in. If the cervix be diseased we should either take it out with the uterus, or treat it by cautery or repair just as if it were attached to a normal uterus. Because the body is gone is no excuse for leaving a diseased cervix untreated. Because you have to remove the body of the uterus is no good reason for removing a normal cervix. The increased hazard of the total over the subtotal hysterectomy is very real. And the pelvis with the cervix left in makes a far better bridge to prevent a prolapse of the bladder and rectum than does the pelvis after a complete operation.

In a young woman we leave both or one ovary intact if it be possible to leave with it an adequate blood supply. Even then we may have to do a second operation for a cystic ovary some months or years later. When the function of the ovaries has passed it is better to take them out with the tumor than to leave them in, though an old functionless ovary is less liable to form a cyst than a young one. The multinodular tumor is as a rule a case for removal. Occasionally we do a myomectomy or enucleation if one or more nodules. This is in the young or in those not old exactly but still clinging to the hope of maternity. It is then often but a generous gesture, but when it sustains so beautiful a hope it is chivalrous to say the least. This type is seldom good for irradiation.

The ideal tumor for irradiation is one presenting a simple globular enlargement that is not too hard to the touch, in a woman no longer young who can at least see the shadow of the menopause approaching. One may use radium or X-ray here with equal confidence as to results.

I have had some queer experiences with fibroids. I remember a negro woman at the old Virginia Hospital who had a very large multinodular tumor. Examination revealed a nodule the size of a child's head presenting through the cervix. We delivered this, only to find a second one next day, and a few days later a third. She did not lose much blood and a week later we did a supravaginal hysterectomy with complete success. Such cases are always surgical; they do not lend themselves to treatment by either X-ray or radium.

I recall the case of another colored woman, half Indian, who came with a large bleeding, sloughing, offensive tumor hanging from her vulva. The vagina was very shallow and the pedicle seemed to completely block it. I concluded that we were dealing with an inverted uterus turned inside out by the extrusion of a submucous tumor attached to its fundus. Everything was so foul, oozy and boggy that this was

no simple or easy conclusion to reach. I decided that when I opened the pedicle anteriorly I should find the tubes and round ligaments lying side by side and stretching down to the fundus. On opening the cavity there they lay all four of them. I did a vaginal —may be a vulval—hysterectomy, and surely no one ever did one so easily. The patient made a remarkably smooth recovery.

I must recount a recent experience which is entirely unique in a classification of the "Fibroids That I Have Met," and for that matter fibroids that I have heard of or read about. A plump spinster of forty-eight placid summers, who was five feet four inches tall and tipped the scales at 160 pounds, gave a negative history except for several attacks of lower abdominal pain, not very severe—not putting her to bed for more than a day.

The present attack for which I was called began five days before while out visiting a friend. She got into the automobile and shifted her seat sideways to make room for her companion, when she was seized with a violent stabbing pain in her lower right abdomen. She was nauseated, vomited freely, and was depressed and shocked. She had several recurrences of this pain and depression in the four days preceding, though of far less severity. She had had no fever. The abdomen was tender and rigid. Her last period which was quite normal occurred two weeks before. There was no bleeding with this attack.

A large tumor could be felt extending up to the umbilicus. Vaginal examination gave the impression of a small uterus as the cervix was quite small and flaccid. The fundus could not be outlined. The tumor was fixed and rather hard. Could this be anything but an ovarian tumor on a twisted pedicle? I thought not, but found on opening her that it could. She had a large fibroid nodule springing out of a small nodular fibroid uterus. The pedicle of the main mass was quite small and it had secured a vicarious circulation by attaching its entire upper surface to the highly vascular omentum. When she shifted her seat in the car she snatched this attachment almost entirely off the tumor. There was at least a pint of free blood in the pelvis and the raw oozing surface of the tumor and the ragged bloody omentum gave mute testimony to the near tragedy caused by so simple a movement which all of us make many, many times each day.

Now, as to the confusion that arises in trying to differentiate tumors from those other swellings that inevitably arise in the course of that ancient and usually honorable estate of pregnancy. "Beware of the tumor," saith the sage, "in which menstruation stops." He does not say when menstruation is present that there is no pregnancy, and your mass is a tumor. No, fortunately he stops a little short of this, for we have all seen pregnant women menstruate right up to term. It is these exceptional people that mess us up in our minds when we have a tumor that bears so many characteristics of the gravid uterus.

A young woman, thirty-three, married, gave the history of irregular menstruation since her periods were established. She was known to have a retroverted incarcerated uterus but declined operation. Several years later all her symptoms became accentuated as to pain and irregular and rather profuse bleeding. The uterus was now enlarged and soft, and we considered it an incarcerated pregnancy and thought she would abort.

We watched her through a period of two or three months, and each new examination served only to confirm our views. Finally we called in an obstetrician who felt as we did but suggested a lipiodol X-ray picture. The conclusion of the long X-ray report I give verbatim:

"Conclusion: Patient has an intrauterine mass, and as the uterus presents a smooth symmetrical dilatation, the condition is believed to be pregnancy of about four months' duration."

We still believed it was a tumor, and since her hemoglobin had dropped to 45 per cent and her red cells to 3,570,000, we went ahead and did a supravaginal hysterectomy. The specimen revealed a large fluctuating mass growing out of the uterine wall and filling its cavity completely. When shelled out this mass proved to be a fibroid nodule undergoing a liquefying degeneration. She is now, nine years later, quite well. Had her examination been less careful and conscientious she would have been operated on and cured much sooner.

The next, and the last, case I have reported briefly once before. I was operating in another hospital and had virtually accepted the history and diagnosis made by a colleague. The old lady who was acting as host to this particular tumor was too old to be pregnant—so was Sarah! The more I felt the shape and size of that tumor the surer was I that I was feeling the gravid uterus close to term. No one was positive as to the time that mass had been noted in this particular case. She was thin. I made

a small incision. The veins of the broad ligaments were huge, the uterus was soft. I could feel the head, the back, the buttocks. What sort of a hoax of a fibroid could look and feel like that? I backed out and closed the little wound.

When I opened and enlarged that wound some days later, I was backed, buttressed and bulwarked by every possible scrap of history that could be assembled. She just could not be pregnant, but the bruit over the mid-portion or body of this tumor gave one a curious feeling as it coursed through the arms of the stethoscope to the ear drum. Well, I went all the way across the Rubicon next time I wet my feet in it. But none of us knew positively until the tumor in a huge pan was ripped open whether I had done a Porro or just a hysterectomy for a tumor. There was a round nodule for the head, a longer one for the body, and one for the buttocks. No, a large tumor that does not bleed is not invariably a pregnancy.

McGuire Clinic.

ANXIETY NEUROSES.*

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One of the psychiatric conditions most frequently encountered by the general practitioner is that of anxiety neurosis. It is on account of the frequency of this condition as well as its amenability to treatment and its favorable outcome under suitable treatment that I have chosen it as my subject. Another reason for the selection of this topic is the fact that the diagnosis of this condition, alas, is so often missed.

This interesting complex of symptoms was first described by Hecker in 1893 but little heed was paid to it until some years later, particularly during the war when the term "neuro-circulatory asthenia" came into prominence. Without dwelling on the connotation of the latter term I would like first to make clear what is meant by anxiety neurosis. It is a minor nervous disorder in which occur episodic attacks of palpitation (to use the patient's own word) accompanied by breathlessness and by other signs of autonomic imbalance such as sweating, feeling of faintness or dizziness, dryness of the mouth and various gastro-intestinal symptoms. The mood in these attacks is one of anxiety or fear. This, at least, is the acute phase of the disease; its complications during the chronic phase will be discussed later.

That such a symptom complex is functional in origin is a point of view that unfortunately finds difficulty of acceptance among the medical profession. Under the widespread influence of the 19th century school of pathology we are taught to believe that all disease has a well-recognized physicopathological basis that is either well recognized now or will be well recognized in the not too distant future. While, of course, no one can question the merit of this general view, I feel that it has its limitation and room should be provided for a group of illnesses which have their origin in psychological and situational causes and which show themselves in disturbances of physiology only. To re-state the familiar, we should regard the patient as a whole and not as a group of independently functioning tissues and organs, and, in regarding the patient this way, we must be prepared to take into account all of the factors—physical, physiological, psychological as well as environmental in the patient's total personality. It is only by divesting our minds of the necessity for underlying physical pathology that we can make sense out of the group which we term "anxiety neuroses".

Let us then return to a more detailed description of this illness as seen by the psychiatrist. We can safely assume that the patient under consideration has already had a thorough physical examination and nothing of importance has been found. The chances are three or four to one that our patient is comparatively young, say between twenty and thirty-five and, contrary to popular notion, the patient is just as apt to be male as female. He enters the office furtively, sits on the edge of the chair, his hands are clenched and the sweat stands out on his brow. Asked his chief complaint, he says that at times he has awful thumping of the heart or palpitation and then adds that he is afraid he will die pretty

*Read before the Alexandria Medical Society at Alexandria, Va., March 10, 1939.

soon. So, first, we get a history of the present illness, for this type of patient is much too anxious to talk about the symptoms to make it worthwhile to get his past or family history at the start. Typically we hear that some days or weeks or perhaps months ago the patient, while sitting or lying quietly, was suddenly made aware of fast and violent heart beats. At the same time, of course, he became dyspneic, broke out in a sweat, and thought he was either about to faint or to die. Further, the patient tells us that he felt he couldn't stay where he was, that he became very restless and just *had* to go somewhere else. He tells us that he recovered rather promptly from this attack but a few days or weeks later this thing recurred, and now, sad to relate, these attacks come on with increasing frequency and leave him exhausted. In the meantime he has consulted Dr. X who gave him a good physical examination and told him to see a nerve specialist.

Right here is where I want to leave this patient in the consultation room and make a few remarks about incorrect diagnoses, which, I am sorry to say, occur so often in these cases. If this patient had not gone to Dr. X who understood these patients but to Dr. Y or to Dr. Z, he might have been told, "You have some heart trouble there, old man. Take it easy. You'll have to lead a restricted sort of life." Possible result: a cardiac invalid with a perfectly sound heart. Or, if one of these doctors happened to be particularly interested in glands, the patient would be told that he was suffering from hyperthyroidism—this, in spite of a BMR nearly normal. Result: months of glandular treatment with steady worsening of the patient's condition. Or, again, he may be found to be a little anemic and given unnecessary iron shots for an indefinite time; or told he has this, that or the other wrong in his G-I tract, when, as a matter of fact, this digestive symptom is only one of the trees in the forest. Many of these patients are first seen by a psychiatrist after a long series of operations inadvertently aimed to cure a total personality disorder—extraction of teeth, tonsillectomy, appendectomy, gall-bladder operations as well as tinkering with the uterus or prostate. It is this sort of fumbling around that prolongs the neurosis and makes its cure difficult, whereas prompt and early diagnosis and treatment by the general practitioner would tell an entirely different story.

Once more back to our patient who was correctly diagnosed by Dr. X but who could not take the time to treat the patient. If we ask him the first time we see him what brought on the attack, we are apt to get an unsatisfactory reply, but if we repeat the question at the second visit we are very apt to find that previous to the first attack the patient was in a situation which required strain on his part for a long period of time. Common situations are, of course, financial or marital difficulty, long engagements, religious conflicts, sickness in the family, business worries, fear of losing a job and many others. This period of strain is then interrupted by a sudden dramatic event such as the loss of a relative, an accident of some sort, business failure, loss of a job, a family fight, an unwanted pregnancy, witnessing an accident or any one of a thousand other things. Let me state here that I do not belong to the school of psychiatrists who must needs find a sexual cause always lurking in the background. That sexual causes do play a major part in some cases is true but I am convinced that many cases arise independently of the sex life. Some such occurrence as mentioned is the straw which breaks the camel's back. Then occurs the first anxiety attack, to be followed by others which seem to occur without rhyme or reason and independently, to some extent, at least, of the patient's surroundings.

Now, of course, the patient must have developed some theory of his own to account for his attacks. First, heart trouble comes to his mind, but Dr. X has carefully examined his heart and told him that that organ is perfectly sound. He is hardly out of Dr. X's office before he begins to reach for another explanation. "If it isn't heart trouble," he thinks, "I guess I'm going nuts." He then remembers that a second cousin of his was in an institution for feebleminded or that a great aunt passed the last days of a long life in a hospital for the mentally ill and he is quite sure that the doors of the state hospital stand open to receive him. Or sometimes other thoughts prey on him—he has a cancer that Dr. X was kind enough not to tell him about, or he imagines he has all sorts of glandular disturbances after having read about such conditions in the daily health column.

So, to summarize, we have, in acute cases, a patient who has been under a long strain, who meets a dramatic situation and develops episodic anxiety

attacks with comparative calm in the intervals except when he attempts to explain his trouble.

Further, in taking a family history we usually find out that one or both parents were of the anxious kind. We hear that "Mother had heart attacks for thirty to forty years which were always worse when father had been drinking." Or, "Father was always afraid to let me do anything or go anywhere. He was always calling, 'Don't play in the street', 'Be sure to put on your rubbers', 'Keep away from those boys and don't climb that tree'." Although siblings of the patient were exposed to the same sort of treatment, they, for some reason or other, seem to have escaped, although it is possible to find one or more of them similarly affected. The patient was always timid and shy, never felt entirely sure of himself and he hated to recite at school; at the same time he always worried about the future more than other persons, he was very conscientious but did his job well, and assumed the ordinary burdens of life without too much fear and trembling. Such, then, is the personality background which we often see in the case of these patients.

Now, what about the chronic cases which I stated I would describe. They do not follow as simple a pattern as do the acute ones. Let us suppose that this same patient did not go to Dr. X but to Dr. Y who, in his own words, "never did have much time to give to those neuros", and as a result rarely diagnosed one although he saw many daily. The patient is given a careful physical examination by Dr. Y who finds nothing wrong. "There's nothing the matter with you—it's just your imagination—snap out of it—pull yourself together. Perhaps a little trip to Atlantic City or Florida will do you good." (That is, if the patient is not one of those who has just lost his job.) "What you need is a complete change of scene. Your heart is all right." A few days later the patient packs up and starts for Florida. After driving 300 miles the first day and congratulating himself on his being so lucky as to be on his way to two weeks of rest and sunshine, the patient sinks into bed to be awakened a few hours later by the worst attack he has ever had. And all alone in this hotel room in a strange town where he doesn't know anyone, he doubts if there's a doctor within ten miles. The next evening finds him arriving home rather sheepishly and somewhat worn-out from his "change of scene". He calls up the doctor who tells him to go out and have a good time that evening. He follows the instructions about as well as any man can who thinks he is doomed either for an early death or lifelong incarceration in the mental hospital. Finally Dr. Y gets tired of this fellow who keeps coming around to his office all the time and who presents no visually or tactilly discernible disorders. So, in desperation, he sends him to Dr. Z who says he has a chronic appendix. Out comes that normal and unoffending organ. For a week after he leaves the hospital, the patient feels fine and has nothing but praise for Dr. Z who is such a fine surgeon and who understood immediately what was wrong.

But, then, about that time the patient goes to a very exciting movie. Just as he sits there, tense almost to the breaking point, wondering whether the hero will get there in time to help out the heroine, his heart gives a furious knock against his chest wall, begins to beat faster than the horses' hoofs on the screen, and the patient (in spite of his seemingly failing heart) rushes out of the movies—not to reenter for many a long day.

Well, let's make a very, very long story short. Two years later he shows up at the psychiatrist's office minus not only his appendix but also less ten teeth and his harmless tonsils; in the meantime his prostate has been repeatedly massaged, his septum straightened, he has taken several courses of iron shots, has swallowed gallons of tonics, and he has been X-rayed all over. The anxiety attacks have tended to disappear although he has one now and then. Their place has been taken to some extent by more or less continuous tension and by all sorts of fears—he can't go in any closed place such as a theater or church; he is also afraid to be alone and he gets dizzy walking in the street. He gave up driving his car a long time ago. He has a feeling of pressure in his head which is more or less constant and which he describes as being at the base of his brain. He can't eat this and he can't eat that, he's afraid of his own shadow and what he thinks of the medical profession is not fit to print.

Such, then, is the picture of the patient who was told at the beginning, "There is nothing wrong with you. Snap out of it." Sometimes, however, something entirely different has happened. The hitherto temperate patient has found one sure means of getting rid of his anxieties and that is by the alcohol route. In

such a case, instead of a patient made miserable by anxieties and fears, we have the well-known picture of the chronic alcoholic who keeps on drinking in order to keep his fear and anxieties out of his mind. Now, after all this, you will naturally say, "How should you treat these patients." Let me sketch this briefly.

First, like so many other medical conditions, I must stress the desirability of early diagnosis. I know of no psychiatric condition which responds more readily and permanently to early treatment, yet which, on the other hand, is harder to treat if allowed to run on for a long time, especially if treated along the lines of therapy that direct attention to one or more physiological systems without paying due respect to the personality as a whole, the patient's situations and emotional problems.

Naturally our first point of attack is a physical examination which informs us and the patient that there is no organic pathology present. This examination should be done thoroughly and as quickly as possibly, and when nothing of importance is found, the patient should be given clearly to understand once and for all that his heart, lungs, stomach and other viscera are normal. This examination should not be repeated, for repetition of the tests will help to destroy the patient's confidence in our statements. It has been my experience that patients who have been well examined by competent practitioners and given strong assurance as to their physical conditions rarely ever ask for another examination.

The next step is to probe the situation until we find what the upsetting factors have been—the long continued strain as well as the sudden and dramatic occurrence which precipitated the first attack. Then the patient can see for himself, by the very facts which he relates, how psychological and situational factors have brought about his condition. It is then our job to formulate the situation more fully to him. Review the facts which he has given and show him how his anxiety attacks have grown out of his situations in life and his manner of reacting to them. It is very desirable in practically every case to supply the missing link here, i.e., tell him something about the autonomic nervous system, show him how it is connected up with the emotions and how strong, unpleasant emotions disturb its balance with resultant reactions in the heart, G-I system, sweat glands and elsewhere. Use analogies and show him what happens to all of us when we get stage-fright. This makes clear to him that his reaction is not far from normal. By now, you will have given the patient a rational explanation of what happens to him and, although this explanation may have to be repeated at later visits, a half, perhaps, of the battle will be won. Finally, in this formulation, show him how worry and anticipation themselves precipitate attacks.

It is well at the first visit to tell the patient to stop discussing his condition with everyone whom he meets because it is a well-known fact that he will receive so many different kinds of advice, as to what he should do, ranging from colonic irrigations to Christian Science, that he will become confused or lose confidence in the physician's advice. He should also be warned not to read newspaper or magazine articles on the subject or listen to radio talks on health, for they are usually phrased in such a way as to frighten an already badly scared patient.

Next, see what you can do to modify the upsetting factors. You can't always get rid of a nagging wife or an alcoholic husband, but you can at least see the offending spouse, explain the situation to him or her and point out how he or she can help by modifying undesirable habits. Often, however, the upsetting factors are easily modified. I recall one case which had developed in the situation of a secret marriage and it was amazing how quickly the anxiety disappeared when the secret marriage was revealed. Then, too, the patient's own habits must be brought into view and common sense directions given to bringing about a healthy change. Frequently we find that very high ambition, perfectionistic standards or over-conscientiousness in work must be curtailed. In short, the patient must be made to realize his limitations and agree (although this takes time) to live within the framework of his abilities.

If the patient is at work, do not allow him to quit his job, but if he has already quit, have him go back as soon as he begins to improve. Even in the case of women who are entirely dependent on their families, some sort of occupation should be undertaken.

Having previously explained the nature of the attacks to the patient, do not ever, under any circumstances, promise him that they will never recur. Rather, minimize their importance to him and tell him what to do when or if another one occurs, to sit still instead of running out, and if possible to read

or talk to some one, and, above all, to remember what you told him—that the attack is merely the reaction on the part of the body to fear, that nothing worse than this will happen and if he will only disregard the attack it will disappear with miraculous celerity. The relatives, too, should be made thoroughly aware of what is going on so that they will show neither alarm, panic nor irritability. Instead they should treat the patient's anxiety as casually as possible without being actually callous toward him.

The patient will need to gain understanding that he has a nervous and not a mental disease—at least, these are the terms which reassure him that he is not going insane. In some instances much time must be given to a discussion of this aspect of his illness to counteract the frequent fear of insanity.

If any other special fears have developed early in the illness, the reason for their origin should be pointed out to the patient and he should be made to face the fears—to go into closed spaces if that is his trouble, or to stay alone if he is afraid to. Tell him that he will be uncomfortable at first but that his discomfort will grow less every time he finds himself in the situation.

It is important, too, that the patient refrain for the most part from alcohol until he is well. Some psychiatrists recommend complete abstinence from alcohol but I think this is too stringent and I have no objection to the patient having a drink now and then if it is his custom. Warn him, however, against using alcohol as a medicinal agent to drown out his anxieties. Some psychiatrists advise the temporary cessation of smoking. I find it so difficult to get the patient's cooperation in this respect that it is far better to have these patients cut their smoking to about half the usual consumption. Normal sex activities should be continued: if, on the other hand, the patient has not had any sexual experience, it is worse than folly to tell him to plunge into sex activity as though this were a panacea for all nervous trouble. Except in severe cases sedatives are entirely unnecessary, and are to be avoided. These patients with anxiety neurosis usually sleep well and need no sedation at night. Very occasionally it is permissible to give a small dose of a mild sedative to help the patients over the rough spots. Do not tell him that he has nothing wrong with him or that his troubles are imaginary. Exercise helps these patients very much to realize that there is nothing wrong with their hearts and we have all found that participation in some form of athletics is extremely helpful to them. The exercise, however, should not be of a too competitive or strenuous nature.

Be prepared, above all, to give plenty of time to these patients but never allow them to become too dependent on your reassurance. While strong reassurance is one of the cornerstones of treatment, it loses its effect if repeated every day. If these directions are heeded, I feel confident that many patients will be easily and permanently cured and prevented from slipping into a state of chronic anxiety from which the road upwards is toilsome and troublesome, although not impossible of achievement. I shall not enter into a discussion now of the treatment of the chronic states, but close with a final plea to recognize and give early and thorough treatment to the numerous palpitating patients with sound hearts but stressful situations.

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EUTHANASIA.*

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It is with somewhat of a hesitancy that I present this subject but it is one that we must give serious thought to sooner or later. I wish to state emphatically and to have it clearly understood that the data contained herein and the argument—pro and con—does not necessarily represent my personal views except where expressly stated. About ten years ago, while presenting a paper on birth control before the Petersburg Hospital Staff, I mentioned the fact then that euthanasia would be under discussion in the next few years. I remember the incident so well because one of my colleagues wanted to know what

*Read at the annual meeting of the Fourth District Medical Society of Virginia, at Blackstone, Va., May 30, 1939.

euthanasia meant. It was my impression at that time it had but one meaning but since then, according to Dr. T. E. Hammond, F.R.C.S. (Assistant Surgeon, The Royal Infirmary, Cardiff), euthanasia refers to two things: (1) the practice of painlessly putting to death those suffering from distressing symtoms as an act of mercy, and (2) the practice of relieving suffering so that the going out from life may take place with as little distress and pain as possible. Since it is so obvious that these meanings have entirely different aspects, each will be considered separately. The former meaning presents difficulties and arguments, but with the latter there is no question that we are entirely in accord. Since it is the strong tenet of the medical profession "to relieve suffering and prolong life," it would appear on the face of this to be no real reason for bringing the first phase of the meaning before you but I feel that there is entirely justifiable grounds for doing so. It is primarily this second phase of euthanasia I wish to emphasize, and the other—well, let it rest as a secondary matter even though it will be considered somewhat at length.

For several years I have been collecting data on euthanasia. Very little on the subject has appeared in the medical literature but there has been within the past few years quite a number of practical instances of so-called "mercy killings" as portrayed in the public press and as evidenced by the clippings herewith shown. I was fortunate in obtaining a photostatic copy of the subject written by Dr. Hammond which appeared in the *Practitioner,* April, 1934. Another article was copied by a relative† at the New York Public Library from one written by C. Killick Millard, M.D., D.Sc., (Leicester Health Officer) who, by the way, has been very active for the cause of euthanasia. This appeared in the *Fortnightly Review,* December issue of 1930. Dr. Millard refers to Sir Thomas More, who, in his Utopia published in 1516, definitely advocated voluntary euthanasia. He states that he was not only a most able man and conspicuous for his integrity but was also a most devout Christian. In 1873, the Hon. Lionel Tollemache published an article in the *Fortnightly Review* entitled "A Cure for Incurables". Reference is also made to the fact that, in 1901, Dr. C. S. Goddard read a paper before the Willesdaen Medical Society entitled "Suggestions in Favor of Terminating Absolutely Hopeless Cases of Injury and Disease."

This age-old subject is nothing new. It was the ancient Spartan practice to permit deformed infants to die. It has been and still is today a practice among certain savage tribes. Evidences of "mercy killings" have occurred in all parts of the globe and such deaths are gaining in number. Few people realize that "mercy killings" now occur in the United States at the rate of one a week. We might consider a few of these. On November 7, 1935, appearing in the *London Daily Mail,* was an account of a physician's "confession" of five "mercy deaths". The newspaper, which described the physician as a "kindly faced, elderly family doctor" said he told of having put to death a newborn baby "doomed to imbecility" and four adults suffering from incurable diseases. Miss Brownhill, a sixty-two-year-old gray-haired mother, was granted a reprieve after being condemned to death for the "mercy slaying" of her imbecile son whom she had nursed for thirty-six years. George Bernard Shaw, commenting on the case, asserted: "Personally, I would say there is a very great number of people enjoying this existence for whom I would be in favor of a painless death." In 1932, James Stenhouse, a British war veteran, admitted killing his three-year-old son with chloroform as an act of mercy, because the child was fated to go through life a maniac. A few years prior to this case, Mrs. Ruth Weimer, of Los Angeles, shot and killed her sister because she loved her so much and could not bear the sight of her suffering. In 1925, Dr. Harold E. Blazer killed his invalid, idiot daughter, whom he had nursed for thirty years, because, as he was growing older, he feared she would never be able to get the proper care after he was gone. One of the most famous cases of euthanasia was that of Richard Corbett, who, in 1929, shot his mother, wife of an English banker, to save her further suffering. The mother had been suffering from a malignant incurable growth and Corbett could not bear to watch her live in such agony. With reference to this case, the famous criminal lawyer, Clarence Darrow, said: "There have been several similar cases in America in the history of the courts and in each case the verdict has been 'not guilty'. The State should make provisions for relieving the suffering of human beings." In the same year, John A. Barton,

†The writer wishes to express his deep appreciation to Mrs. Georg Bowman, Jr., for her able assistance in collecting data from the New York Public Library.

bank president in Minnesota, shot and killed his crippled seventeen-year-old daughter, afterwards turning the gun upon himself. On July 21, 1934, Mrs. Jessie Hopkins, of Guthrie Center, Iowa, felt that for her seventeen-year-old imbecile daughter, Elma, the darkness of death was much less fearsome than the darkness of life without a mind, or incarceration in an institution, when she confessed giving her strychnine in fried chicken during her birthday feast. In 1933, John Stephens, of Atlanta, Georgia, a thirty-two-year-old jobless church worker, quite calmly battered in the head of his aunt who had endured terrible suffering for five or six years from cancer. The young man had kept constant vigil at her bedside and watched her suffering until he could stand it no longer. The sick woman begged him to "Please hit me over the head and put me out of pain." Another instance of a case appeared in the *Richmond Times-Dispatch,* January 13, 1939, in which it was recorded that Louis Greenfield, of the Bronx, New York, was tortured for years by the suffering of his backward and chronically paralyzed son, Jerry, age seventeen. The son's agonies drove his father to kill him with chloroform with calm deliberation.

Were these people justified in their actions by taking the law, medicine, and religion into their own hands? What would you have done under the same or similar circumstances? Would not some of these "mercy deaths" have been prevented had the attending physicians administered drugs in sufficient dosage to relieve the sufferings that these humans must have endured? It is plausible to believe that the constant vigil by the bedside of their loved ones, watching their intense torture from pain for months or years would no doubt prey on the minds of the "mercy slayers" and finally derive them of all reason. Is it not strange that these "mercy slayers" apparently seem to betray no remorse after their deeds? Have they violated the stern Mosaic law—"Thou shalt not kill"—fundamentally speaking? In view of this law, by what right does the State have to take life except through legalization by man? Should these people be accounted for and held for murder when they have destroyed as an act of mercy? Every dictionary defines murder as "killing with malice aforethought"; obviously, these people had no malice but rather mercy in their minds. Should the Mosaic law—"Thou shalt not kill"—be changed to read: "Kill if it would be more merciful to a suffering human than allowing him to live?" Opinion seems to be shifting to the view that those suffering from extraordinary and incurable diseases, mental and physical, should be allowed to end suffering if they wish. As laws of the nation and various states now stand, such killings are actually murders. Yet the records show that "mercy killers" are seldom convicted. The stiffest penalty meted out in recent years to a "mercy slayer" was three months' imprisonment. A poll taken in this country in 1937 revealed that approximately 53 per cent of the nation's doctors approved of euthanasia for incurables. At the same time, though, only 45 per cent of the public indorsed such measures. People are asking themselves more today than ever before whether all this vast amount of physical suffering is really necessary. Since the World War a great change of public opinion has taken place in regard to old-established ideas. Humanitarian sentiment has become stronger today than ever before. Birth control, you will recall, raised similar, heated controversies in regard to orthodox "morality" as does euthanasia, yet the opponents of the latter can speak with no greater bitterness against euthanasia than the opponents did against birth control. It seems clear that the decision to live or die should be left to the person directly concerned and not to another individual. Such would be the case if proper laws were enacted. In this respect, however, there is the delicate question of whether or not a patient was rational when he signed his life away. Science is steadily advancing in its efforts to conquer disease and it is possible that what is considered to be an incurable condition may, during the person's illness, become curable. Another difficulty open to the possibility of euthanasia is the fact that it would create a wide field for unscrupulous tactics and persons, but such problems might be met by the proper checks and investigation of the status of the particular case. When the right to die becomes a definite established principle, in the cases of incurables, then the right to kill ceases to become a problem. The stigmata of the murderer, however merciful, would at least be removed from some one's shoulders. If and when euthanasia is established legally, a final problem presents itself. According to Dr. Howard W. Haggard, noted physiologist: "The judge may in dignity, with self and public respect, condemn a man to death, but he may not then in the

same dignity and respect step down from the bench and execute the man. Similarly, a physician may in dignity and respect give as his opinion that the sufferer is entitled to the benefits of euthanasia, but he will not, I believe, retain his dignity and respect if he practices public euthanasia. The physician can not serve two master—life and death."

Whether this phase of euthanasia is right or wrong, there has been quite a decided interest in its behalf. It appears that the British have been very active in this age-old subject. Lord Moynihan, one of Britain's distinguished surgeons and for years president of the Royal College of Surgeons, disclosed a campaign to give incurables "the right to die". He announced that influential members of the medical profession and the clergy would call a meeting to propose "laying the whole proposition before the country". On November 4, 1936, a "mercy death" bill was introduced in the British Parliament, the most conservative law-making body in the world, by Lord Ponsonby, to authorize physicians under rigid regulations to administer drugs to end the lives of incurables at their request, but it was defeated. Other prominent sponsors of the euthanasia cause who might be mentioned are Professor Julian Huxley, the Earl of Listowel, and Lord Denman, former Governor-General of Australia.

Considerable interest has recently been shown in this country, especially in the formation of the Euthanasia Society of America which contemplates the legalization of "mercy killing" for the incurable —the men and women who, tossing on beds of pain, pray for release from further sufferings. The founder and president of this society is the distinguished and well known Rev. Charles Francis Potter. At its first banquet recently held, those who spoke with enthusiasm for the program of "merciful death", in addition to Dr. Potter, were Dr. Foster Kennedy, professor of Neurology at Cornell University and consultant at Bellevue and New York Hospitals, Dr. Clarence Cook Little, managing director of the American Society for the Control of Cancer, and Martin W. Littleton, counsel for the accused in an euthanasia case. Dr. Howard W. Haggard, previously mentioned in this article, was a dissenter as to the method of administering euthanasia. Following the confession of the British physician who took five lives, a storm of conflicting opinions was provoked in New York medical circles. Dr. Alex Carrel, internationally known research surgeon and winner of the Nobel prize, favored death for the unfit. Quoting Dr. Carrel: "The question is one of great importance. Sentimental prejudice should not stand in the way of civilization. It is my opinion that not only incurables, but kidnappers, murderers, habitual criminals of all kinds as well as the hopelessly insane, should be quietly and painlessly disposed of." Dr. Emmanuel M. Johnson, research ophthalmologist, said: "Physicians know that those born hopelessly deformed live in absolute misery. They should be gently put out of that misery as a saving and safeguard to the State." Dr. Frederick Bancroft, member of the New York City Cancer Committee stated: "I don't see why we shouldn't give humans the same treatment that we accord animals. I do not see why a person should be condemned to agony, but there are many difficulties. In the first place, it is practically impossible to be certain that any condition is incurable. In the second place, I know of no mechanism by which such taking of life could be made legal, although a board to pass on apparently incurable cases seems to be the most logical means. Finally, we never know when a cure for an incurable disease may be found."

Dr. Iago Galdston, executive secretary of the New York Academy of Medicine, declared: "If society demands that sick persons be executed, it will have to look outside of the ranks of the medical profession. Such deaths are contrary to the spirit and letter of medical ethics." Dr. Harry M. Warren, president of the "Save a Life League" asserted: "Life was given to us for a purpose. It is our most sacred trust. No one has a right to take it." Dr. A. A. Brill, noted psychiatrist, stated as his position: "Many men and women pronounced incurables have, with treatment, become worthy citizens of this nation." At Oklahoma City assembled for a clinical meeting, it was agreed by American and foreign medical specialists that no doctor has the right to take a patient's life since he has no way of being certain a case is incurable. Quoting Dr. Henri Coutard, of Paris, chief of staff of the Currie Institute: "Often in the medical arts we make mistakes. Life is too big a thing to take away. Even in hopeless cancer cases it is possible to give relief. Men born crippled or feebleminded have been responsible for some of the great works of art. Why should their lives be taken?" Dr. Max Cutler, director of the tumor clinic of

Michael Reese Hospital of Chicago, declared: "We do not have the moral right even to consider any course except an effort to bring about the recovery of the patient." "Even if it were legal for a doctor to take life, advances constantly being made in the science of medicine might make him regret it", observed Dr. Russell L. Haden, chief of the Department of Medicine, at Cleveland. Thomas Lomax Hunter, the well-known Virginia attorney and columnist stated to me that euthanasia presents some very difficult problems. Quoting Mr. Hunter further: "The late Dr. Osler's suggestion for euthanasia for all folks over sixty was taken by the world as a joke, and was doubtless said by the Doctor in a facetious moment. Age is an incurable disease and euthanasia for the old is not without good rational ground." In one of his columns appearing in the *Richmond Times-Dispatch,* I found this statement: "We prolong man's most agonizing death with all the means which medicine knows and call it prolonging his life."

Whether or not you have come to any definite conclusion or are interested in euthanasia from the standpoint of its first meaning, there can be no doubt as to your belief in its second phase, namely: "The practice of relieving suffering so that the going out of life may take place with as little distress and pain as possible." Surely there can be no negative argument in this respect but do we always keep it in mind and carry out this practice? If we do not believe in euthanasia in the form of "mercy killings," then the least we can do is to exert to the utmost our efforts to prevent or minimize suffering and keep the patient as comfortable as possible. It has occurred to me that perhaps some of these "mercy deaths" may have been provoked not only by the constant visible suffering, mental and physical strain, but also by the apparent lack of attention and effort to relieve pain on part of the attending physician. Also, can you not recall patients with hopeless and painful conditions who, upon being refused an operation by others, occasionally find a surgeon who advises such a procedure even if the operative risk is very great and the relief problematical? He seems to think this more reasonable than the administration of large doses of morphine and allied drugs to relieve pain. Such an operation with its added pain and other factors should not be advised by any surgeon since there are more pleasant ways of making a lethal exodus. The State has entrusted to the physician great powers in the use of drugs to relieve pain and suffering in order that life may go on with as little disturbance as possible and that death may take place peacefully. He may, therefore, administer as much as he deems advisable to a patient so far as his aim is for relief of symptoms. Even though the patient may prefer death, the practitioner is never permitted to hasten its approach. It must not be assumed that drugs given for the relief of suffering neccessarily hasten the end, for it must be remembered that if constant pain is allowed to continue unrelieved it will soon undermine the patient's health and lead to death. Even if the drug has a depressant action, its harmfulness may be more than counterbalanced by the serious effect of the prolonged and severe pain for which it is given to relieve. There is now a well-recognized tendency on the part of the medical profession to concentrate its attention on the prevention of disease and maintenance of health when one of its aims should be to endeavor to make living and the passing out of life as easy as possible for the patient and those concerned. The neglect of this phase of euthanasia is certainly not keeping faith with the State and patient. The use of hypnotics, which has reached such a high degree of perfection, has been focused to the relief of pain and strain associated with operations and parturition and a neglect of the sufferings of those approaching the end of life. The physician is obviously not always aware of the amount and intensity of the pain his patients undergo during his absence since he is not in constant attendance as are the nurses, relatives and friends. At the time of his visit he may find the patient without pain and entirely comfortable.

At times, death comes very slowly and its delay may not only be very tragic to the patient but to those about him. It is realized that it may be difficult in these cases to keep the patient free of pain at all times and that tolerance to a drug is obtained. It is, therefore, not only advisable but very important to preconceive a general plan of treatment. Someone in the family should be taught how to administer a hypodermic to take care of emergencies that may arise or in case the nurse is off duty. Also, it is advisable to begin with the less powerful drugs and use opiates and morphine last. So many drugs are available in this day and time that if properly selected and administered it will not be necessary for

the patient to linger on in agony with pain unrelieved. Science continues its search for a morphine substitute that will relieve pain without causing addiction to the drug. Recent reports indicate that cobra venom has given relief of the severe pain of cancer and other conditions. In a group of patients suffering from advanced cancer, nearly two-thirds were relieved of pain by the venom. The ordinary pharmacopeial doses are useless in certain diseases and at certain stages. Considerable large doses of morphine or opium may not only be necessary but should be given. The pain associated with renal colic is one example with which we are all familiar. In those cases of inoperable cancer with pain it is often surprising how extremely large doses of morphine may be tolerated. It may be necessary to give thirty to forty grains in twenty-four hours. Dr. Hammond makes reference to a case he saw with inoperable cancer who had been given one and one-half grains of morphine every hour for over a month previously and towards the end this was increased. When seen by him a fortnight before his death he was perfectly rational and talked quite sensibly.

As the end of life approaches, how often has it been observed the efforts that are made at times to keep back the departing soul. Let us take, for example, an elderly individual who has been confined to bed for years paralyzed from a cerebral hemorrhage and is perhaps a dotard. Another hemorrhage occurs but by the aid of stimulants and oxygen day and night, a body hardly breathing and a pulse barely palpable are kept going for perhaps a week longer. Somehow it is difficult to see the object of all this. It appears to be an abuse of medicine to prolong life in this useless manner. Although the physician can do nothing to terminate life, it is agreed that death in such cases is a relief to all concerned. Can you not recall instances wherein the end was near and the family requested that efforts to keep the patient alive be discontinued and that he be allowed to go peacefully? How often do we at times add to the suffering of bed-ridden patients by forcing stimulants when the body cannot be stimulated, by forcing foods when the mere sight and smell produce nausea, and by numerous physical examinations and tests for laboratory analyses. Some of these procedures are quite unnecessary and merely weaken the patient and add to his misery. Such attempt at the prolonging of life, if any, is merely prolonging the act of dying. There is such a thing as over-doing in the practice of medicine and this has not only killed patients perhaps, but has certainly hastened the deaths of others. It must be admitted that many needless and unjustifiable operations have been performed because of the lack of proper and serious consideration. When an operation is discussed, the physician should take into consideration not only the immediate risk and suffering that the operation involves but whether the expectation of life is sufficient to justify this procedure and whether if the patient survives, his health will be sufficiently good to make life worth living. It is not denied that unnecessary efforts and superfluous procedures exhibited by physicians at times are due in a large measure to his honest desire to help his patient and perhaps bring about a recovery. Some men, unfortunately, do not know when nor where to stop. Others apparently have a fear that unless a great deal is done they will be criticized for apparent lack of duty and effort. If there is nothing more to do than to make the patient comfortable and keep him from suffering with drugs on his passing out of life, do it and let all the superfluous procedures go.

This brings up, obviously, the question of consultation, a most valuable procedure and often one which saves considerable future embarrassment. Certainly when dealing with any seriously ill patient a consultant is most desirable for many good reasons already well known to you. The family should be told very frankly the facts in the case and, if need be, a consultant should be insisted upon even though the family has the utmost confidence and are entirely satisfied with all that you have done. It is not only fair to the patient and his relatives but is equally so to the attending physician. It does not signify that he knows less necessarily or that he is belittling himself but it does indicate that he is a real physician and has every interest of the patient at heart and the proper feeling for the relatives. In the type of patients under consideration it is granted that perhaps consultation will add nothing so far as the recovery of the patient is concerned, but there should be a great deal of satisfaction and ease of mind in knowing that duty has been performed. The doctor who sticks out his chest with an air that he knows all, that he is all important and cannot err, that he has done everything and a consultant is unnecessary, is not the man to be called a physician.

In bringing this article to a close, there is just

one last thought I would like to leave with you. Death in itself should not be looked upon with horror and dread. What does give concern, however, is the fear of being stricken with some incurable disease which, instead of causing a quick exit, might result in a lingering, painful death. One not only shrinks from such a prospect for himself, but the thought of the strain and mental anguish which such an illness may entail upon his loved ones may be an even greater dread. To live always with an incurable condition and its associated physical and mental torture would be hell itself. The joy of living is not only for service that mankind can render each other but also the consolation that there is such a thing as death. When one ceases to live for others and to render the kind of service that will bring desired benefits of life to his fellowman, when he thinks instead of himself alone and his every act and deed is for selfish gain—then euthanasia for this type of unfortunate, miserable soul is unnecessary—since he is already dead.

101 Liberty Street.

THE PREMATURE INFANT.*

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The pediatrician very frequently is called by the obstetrician to come to the hospital in a hurry, for he has just delivered a very small baby at six and one-half or seven months and he has not even weighed it because it is so small. When we get such a call we should respond as promptly as possible, for the birth of a premature baby constitutes a pediatric emergency. These tiny infants need very special care and attention right from the start.

The characteristics of the premature infant put him in a class by himself, so let us at the outset go over some of these features so that we can better understand why he needs this special care.

Any baby born before the thirty-fourth week of gestation is premature and those weighing less than five and one-half pounds or 2,500 grams are usually premature. A baby may be premature, however, who weighs as much or more than the average normal birth weight of seven or seven and one-half pounds. By the same token, one weighing less than five or five and one-half pounds may not be premature because of the inheritance of a small stature. In general those infants who are born prematurely and those who are very small at birth need very special care and feeding. If the prematurity is the result of syphilis, further special care is needed.

Premature infants lead an essentially vegetative existence. The muscular activity is only slight and the reflexes are all poorly developed. The sucking and swallowing reflexes are frequently almost absent.

The respiratory center is often poorly developed and the respiration is very irregular. There are long periods of apnea accompanied by cyanosis when the infant may die. The apnea may be due to cerebral hemorrhage involving the respiratory center.

Another striking characteristic of the premature is the fact that he is thermo labile because his heat regulating mechanism is not well developed. His body temperature falls below normal on the slightest exposure to cold, and if the room temperature is high his body temperature goes up. If the surrounding temperature is not carefully regulated his body temperature may fluctuate as much as five degrees Fahrenheit.

The digestive capacity is very low because the digestive enzymes are present only in very small amounts. The gastric capacity is also very small and the motility is impaired so absorption necessarily is poor.

The nutritional requirements of these babies is very high. They need seventy to eighty calories per pound per day and large amounts of protein and mineral salts are required because of the rapid growth. Large amounts of vitamins are necessary, especially vitamin D, for the premature has a special tendency to rickets.

Finally, the premature has no immunity, so when infections are contracted they are apt to be serious.

Therefore we can anticipate somewhat, from the background of these characteristics of the premature, some of the factors in their care which need special attention.

*Read before the George Martin Kober Medical Society, at Washington, D. C., January 16, 1939.

In the first place his body temperature must be kept at a constant level. This is accomplished through proper clothing and a warm environment. A shirt and a diaper is used, then a quilted cotton jacket around him with a hood for the head. The jacket is only opened and not removed when the diaper is changed. His environment may be a small heated room or one of the various forms of infant incubators. For the very small infants the temperature is kept at eighty-five to ninety degrees Farenheit. For those weighing four pounds or over it is kept at eighty to eighty-five degrees Farenheit. The humidity is kept at about 55 per cent as an optimum.

When the baby is changed or bathed he is not removed from the warm room or incubator bed. A small portion is bathed at a time and oil is used instead of water. Olive oil may be used or there are several good baby oils on the market for this use. It is preferable also to weigh these babies only every three or four days, for the less they are handled the better.

Infections at all cost must be prevented. Prematures are extremely susceptible to infections and even such a simple infection as a cold in the head may be fatal. Only one nurse should take care of these babies and she should be relieved by one person regularly. The nurses should wear face masks, and no visitors are allowed in the room.

The respiratory activity must be maintained. At best the respiratory effort is very poor and he is often unable to expand his lungs completely. The breathing is shallow and irregular and at times he "forgets" to breathe, so to speak, causing periods of apnea. The respiratory center is insensitive and therefore it is difficult to maintain normal respiratory activity. It is impractical to stimulate the skin as in full-term infants. Probably the most effective stimulant is 5 per cent carbon dioxide in oxygen. Pure oxygen may be used to clear up the cyanosis. Drops of cold water may be used on the face with some benefit. The drug alpha-lobeline, although a dangerous one, if used carefully may be of great value. The initial dose is not more than one-fortieth or one-twentieth grain and it should not be repeated oftener than four to six hours.

Finally, the diet must be sufficient to cover the special requirements, yet small enough in volume and easily digestible. There are special difficulties which premature infants present in feeding.

The digestive capacity is low and the food requirement is high. The gastric capacity is small so the volume must be small per feeding. The feeding interval must be long enough for the stomach to empty because of the delayed motility.

Human milk is the food of choice for the premature. The mother is likely to have a small amount of secretion, however, because her baby has been born too soon. Her breasts are deprived of the normal stimulation because her baby can't suck vigorously. We must pump the breasts and feed the milk to the baby. If the mother can't furnish the milk we endeavor to get it from another woman.

Breast milk, of course, has only about twenty calories per ounce so frequently we must fortify this in order to give sufficient calories per day. We sometimes use one of the powdered milks, powdered casein, etc., to step up the calories per ounce.

If breast milk is not available we use an easily digestible artificial milk and this is usually evaporated milk. This can be acidified or not as the indication arises. Many formulas have been devised for the premature but in general it should be one with a high caloric value per ounce and have extra protein in it.

There are certain mechanical difficulties met with in feeding any type of formula. The infant may not suck well at all so we use a medicine dropper or a "Breck feeder". Many times he aspirates the milk because his swallowing reflex is so poorly developed. If this occurs, then we must feed the baby by gavage until he is strong enough to swallow. A number twelve French catheter is used through the mouth or nose and inserted only to the cardiac orifice of the stomach. This in a four-pound infant is about five or six inches from the gum margin. When the catheter is removed it should be pinched off so the milk does not drip into the pharynx.

The feeding interval, whether it be two, three, or four hours, must be worked out for each individual case as well as the volume per feeding.

Egg yolk, if the infant will tolerate it, is added after the first two or three weeks and is best shaken raw into the formula.

A lot of vitamin D should be provided right from the beginning in order to prevent rickets. Sometimes even though a fair amount has been provided the premature will develop mild rickets anyway.

After he weighs six or seven pounds he is treated like a full-term infant.

These infants are frequently under-sized for the

first year or two but after that they seem to develop physically and mentally just as any other child, except if the prematurity be due to lues he will always be handicapped.

Let it be understood, therefore, that the birth of a premature baby constitutes a pediatric emergency, and the pediatrician should respond promptly when he is called. Some of the characteristics of the premature have been reviewed which make it clear that if we are to save the lives of these tiny human beings we must (1) keep body temperature constant at 99 to 100 degrees Fahrenheit; (2) respiratory activity must be maintained; (3) infection must be prevented, and (4) a high caloric diet with extra protein and vitamin D must be provided.

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THE RELATION OF STATE HOSPITALS TO OUT-PATIENT CLINICS FOR MENTAL DISEASES.*

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For many years medical officers of state hospitals led more or less secluded lives within the walls of their institutions. An explanation of this situation is not difficult to give. In the early history of these institutions mental illness *per se* was not of primal consideration, but mental illness which by reason of its social implications became a concern of the State and led to commitment for the safety of society or the individual was important and demanded a place for safe custody.

The lunatic asylum of the old days is the type which represented the state's provision for this class of its citizens, and it partook of the nature of a prison primarily and of a hospital secondarily. It was assumed that the inmates might of course on occasion require the attention of a doctor, but not necessarily a doctor skilled or even greatly interested in psychiatry. Pessimism prevailed with regard to therapy as related to mental illness. The position of assistant physician offered little attraction to ambitious young physicians, except as a temporary job or steppingstone in his professional career. Indeed, the senior physicians were often older men to whom the security of the hospital and freedom from competition appealed—for the most part the world forgetting and by the world forgot.

The superintendent was frequently selected for one of two reasons: either he was an outstanding personality with administrative ability, or he was a political appointee, pure and simple. In either case he followed the traditional custom and was the dictator of the destinies of his institution. Seldom was he selected because of his outstanding medical qualities. In the selection of his medical staff members subserviency and willingness to take and carry out orders were relatively more important than medical attainments. Whether or not the staff ranked high qualitatively, it is certainly true that it was quantitatively small, and the routine work of the hospital kept the assistant physicians busy within the confines of the institution. Few outside medical contacts were possible, and it was the exceptional superintendent who encouraged his doctors to attend medical meetings. Indeed, it is told of one of the best superintendents of the old regime that when one of his assistant physicians declared his intention of spending his vacation in a progressive hospital in another state learning something about psychiatry and desired an extra week to complete his studies, the superintendent was thunderstruck and could not understand the attitude of the young man who imagined there was anything to learn that he could not teach him in his own institution. (The extra week was denied him.)

Psychiatry was hardly recognized in the curriculum of the medical schools. As a result of this and for other reasons which I might mention, the medical work in state hospitals did not rank particularly high, and its medical staffs were more or less isolated from their professional brethren and the outside community.

On the other hand, let us not forget it was the state hospital that gave birth to psychiatry, and from whose spiritual womb came the founders of the American Psychiatric Association as well as in a later generation Searcy, Hurd and Pilgrim; then

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Salmon, White and Kirby; and finally the large majority of those now living who, as writers and teachers, students and administrators, are setting standards in psychiatric thought and practice. This was in spite of, rather than because of, the traditional set up of the state hospital. It was the occasional and exceptional physician in the service with a scientific turn of mind and progressive spirit, using the facilities and material of the state hospital, who has made the greatest contribution to psychiatry. All honor to those hospital physicians who, in an uncongenial atmosphere and working against tradition, have played so important a part in the drama which is an account of the progress of psychiatry during the last three decades. "Forty Years of Psychiatry" by Dr. William A. White well illustrates what I have said. This autobiography of a man who is a product of the state hospital and whom I regard as the greatest psychiatrist America has produced should be read by every doctor and medical student. To those who seek only entertainment it is as gripping as a novel, and to those in earnest it will prove most stimulating.

With the foregoing preamble somewhat in the nature of an apology, I offer the assertion that the state hospital today is in fact a medical institution, staffed predominantly by physicians who are alert to the somatic and psychiatric needs of their patients. In nearly all of our hospitals are physicians who are alive to scientific advances, and with proper support they are in a position to make a greater contribution to extra-mural psychiatry than any other group of which I have knowledge. Indeed, I venture the further assertion that those in the state hospital service who study and deal with the individual who has broken down as a result of environmental factors are in a better position than anyone else to study and correlate these factors into a complete picture. It is impossible, I believe, for any outside group not in touch with the end product of mental disease—the sick individual—to deal adequately with environmental conditions which led to the disease. It is important for the group treating the patient to know intimately the things which contributed to the production of the picture they see, to know the influences prenatal and developmental; the traumata of infancy, childhood and adolescence; the social, economic and industrial implications and all the rest of the environmental factors, a longitudinal as well as a cross section if you please. The maximum contribution to extra-mural psychiatry can not be made by any group which must assume as a point of departures that certain conditions have produced a mentally sick person and that something must be done about these conditions. It is just as logical to assume that a man with a temperature has been made physically sick by something at home and proceed to deal with the food, the water, the heating, the plumbing, the ventilation, the light and the many other things which go to make up the home, without first determining the pathology and symptoms of the man's sickness. He may have pneumonia, enteric fever or malaria. His sickness may or may not have any relation to conditions in the home. It is necessary to know much more than the fact that a mental patient has manic-depressive psychosis, schizophrenia or paranoia. A label means little in psychiatry except a help in determining the course of the disease. Dr. White says the important thing is to determine what the symptoms mean and what the patient is trying to tell us by his delusion, his depression or his excitement. The patient is doing his best to tell us, and it is our lack of skill which keeps us from interpreting the symbols and applying the appropriate remedial measure.

Dr. H. D. Lasswell says psychiatrists formerly confined their studies to the entity which they called the "individual". They took for granted that the totality which they wanted to study and protect was the cell bundle of which the "individual" was composed. They made some rather disturbing discoveries when they undertook to follow disease processes to their source. In the history of certain schizophrenic patients they often came upon family environments which the physician was accustomed to regard as exemplary. The mother might be domineering and very scrupulous, but such conduct was, if anything, supposed to signify an excess of virtue. The physician's bias did not permit him to subject this environment to the indignity of being included within the disease process itself. But it was finally found impossible to advance without breaking through the bonds of our preconceived ideas. It was finally clear to us that the entity with which we were concerned was not the cell bundle, but an interpersonal relationship. It was evident, for instance, that interference by the over scrupulous mother is a part of the sequence by which effective interpersonal relationships are made impossible. So I think do all of the pathological environmental factors to which the patient has been subject become a part of the disease aspect, and therapy must concern it-

self with environmental factors as well as with the individual.

Having hinted at the need for the hospital psychiatrist to emerge from within the walls of his institution and reach out into the community not only for the sake of his particular patient, but because of the intimate relationship of family and community problems to his patient's illness, it remains for me to suggest in what way our state hospitals may have a contribution to make to mental hygiene in the community.

The mental hygiene clinic is of comparatively recent development. In fact, it may be said to be still in the developmental stage. I shall not go into its history nor into the details of its set up and aims, its disappointments and its changes of direction. In the minds of the majority of leaders of psychiatric thought in the American Psychiatric Association, in the National Committee on Mental Hygiene and in those medical schools teaching Psychiatry, as well as in the various welfare groups, the Mental Hygiene Clinic even in its present imperfect state has justified itself. As part of the Symposium on Mental Health presented at the recent meeting of the American Association for the Advancement of Science in Richmond, Dr. J. Allen Jackson, of the Danville State Hospital, Pennsylvania, described fully and clearly the accepted views of psychiatrists in the matter under the title of "The Role of a Public Mental Hospital with Reference to the Mentally Ill of a Community".

Assuming, therefore, in view of this that the Mental Hygiene Clinic is an established psychiatric procedure and that it is progress in the right direction, let us consider the relationship which should exist between our State hospitals and the Clinic. In the first place, there is an imperative need for a Clinic in order to keep in touch with our furloughed patients, in order to investigate the conditions in the home which have a relation to our patient, in order to give advice to our discharged patients and their families which may prevent another hospitalization, in order to obtain histories which will enable us to understand better our patient and his problems and, in short, to do all those things which may be conceived of as our full responsibility to our patient and which are not limited to the period between the date of his entrance into and the date of his exit from the hospital. This alone is enough to justify the setting up of such clinics as part of our hospital activities and more than enough to keep us busy for some time.

With this beginning it is inconceivable that there would not be a logical development which would concern itself with mental hygiene problems that extend to others than patients and former patients of the hospital—to those individuals who, because of abnormal mental functioning, need help in adapting themselves to community life, to the juvenile courts and schools in dealing with their problems and to work of an educational and preventive character. It is my feeling that the clinic should not function simply as a drag net to increase the hospital population, but, on the contrary, should be essentially a mechanism for the prevention of hospitalization. Unfortunately, many social workers without adequate psychiatric training sometimes act upon the former principle rather than the latter. It is for this reason that I would like to see the extra-mural field occupied and controlled by the personnel of the state hospitals and psychiatrists with a broad and comprehensive grasp of mental health problems.

We are, of course, at once faced with retarding factors such as limited resources, the over-load already carried by the hospital staff, and other things. It is foolish to expect the already inadequately staffed institutions to take their rightful place as community agencies for the control and prevention of mental health and to exercise an educational influence if they are unable to function as they should in their primary task of treating and curing the mentally ill. Yet I think it is generally true that the hospital staff which limits its activities to routine matters stagnates. In my own hospital experience I have seen new life put into the staff by its having to take on educational work with medical students in addition to their other duties. Aside from the primary reason for the hospitals of Virginia to assume the conduct of outside mental health clinics, the hospital itself stands to benefit in the development of a staff with a more comprehensive vision. In short, its staff members will become better psychiatrists. They will partake of that insight which Dr. Lasswell speaks of as bringing "psychiatry out of the hospital into a richer and more pertinent contact with reality".

During the latter part of 1937 the State Hospital Board invited the Mental Hospital Survey Committee, affiliating with the American Psychiatric Association, the United States Public Health Service, the American Medical Association, the American

Board of Psychiatry and Neurology and the National Committee for Mental Hygiene, to make a survey of the Virginia State Hospitals with recommendations. In this report, under the caption "Public Relations", it is suggested that the hospitals should be the centers of all mental health activities in their respective districts, and that the members of the medical staff should be encouraged to fit themselves to speak intimately and helpfully on all questions of mental hygiene before various groups, such as parent teacher associations, civic clubs and the like, but particularly should the hospitals establish out-patient clinics throughout the district at advantageous points for consultation and treatment. After calling attention to the varied services which such a clinic might render, it concludes with the statement that "Leadership in these matters should come from the institutions and the State Hospital Board".

Another important recommendation was that the position of Director of Clinical Psychiatry at each hospital be established in addition to the present first assistantships. The Hospital Board is on record as being committed to the latter proposition and has already established such a position in several of the hospitals. I think in our present set up these two propositions are intimately connected, and the development of one can lead logically and easily to the other. It is my feeling, therefore, that in selecting men for Clinical Directorships careful thought should be given to the candidate's training and experience in extra-mural mental health work to the end that he may have the qualifications necessary for leadership in this departure as well as the ability to take his part in the educational activities referred to in the report.

With the clinical work properly organized under the leadership of a Director, and the necessary increase in hospital medical personnel added, I can see no reason to delay for a more propitious time the establishment of out-patient clinics in the several hospital districts. Details relating to cooperation of the various public welfare units in the counties, I believe, would work themselves out in due course. Already such service as they can render with facilities at hand is being given willingly. With proper organization and adequate leadership I have the conviction that cooperation will not be lacking. In the experience of other states if the hospital is deprived of the responsibility for out-patient service, the paroled patient inevitably suffers. It is hardly necessary to call attention to the need for the closest possible relationship with local physicians in any community in which a clinic is operating, particularly the family physician as it is to him that we must look for the largest measure of aid and assistance in the carrying out of any worth while program.

Initially most hospital mental health clinics arose as the result of a necessity for after-care work on paroled patients with a view to facilitating community readjustments and reducing the rate of readmissions. This is, of course, by far the most compelling reason which the hospitals have for entering this field and at this time might well serve as a point of departure for the extension of community service along broader lines as the way is opened and as the necessary local cooperation is provided. The state hospital today is in fact a very real part of the community. Modern developments in the care of the mentally sick have brought the two into an intimate relationship, in which the interests of the one are bound up with the interests of the other to their mutual advantage and concern.

I believe the time has come in Virginia for the state hospital to assume its share of responsibility for the mental health of the community and to this end, in spite of our small personnel, that we should assume leadership in the development of Mental Hygiene Clinics in the various hospital districts.

REPORT OF FIVE HUNDRED CASES OF VARICOSE VEINS—INJECTION TREATMENT WITH AND WITHOUT LIGATION.*

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INTRODUCTION

The history of the injection method of treating varicosities is quite familiar. The usual trial of the new method, over-emphasis of success, followed by an increased number of unfavorable reports, caused a cessation of this mode of treatment about 1894 when, at the surgical congress at Lyons, this form of treatment was disparaged. It was revived by Schiassi in 1906, according to Shelly.[1] Since then such progress has been made toward developing an ideal solution that the injection method, with or without ligation, is an acceptable therapeutic measure. In our work we employed 5 and 10 per cent sodium morrhuate (Searles) and sodium morrhuate (Kirks). A few of our cases were treated with quinine and urea hydrochloride and a few others with monolate (Abbott). We are reporting 500 cases from our office practice covering a period of over two years.

Fig. 1.—Type Ligated.

Some conclusions regarding the efficacy of this form of treatment and some knowledge of the reactions may be drawn from our experience. The average amount of sodium morrhuate given at one time varied from 1 cc. to 15 cc. Lately we have diminished the amount to a maximum of 6 cc.

The more pronounced varicosities, some of which were associated with ulcer, were ligated in the office and immediately injected. Thirty-eight cases required ligation and injection. In all, two thousand, nine hundred and thirty injections were given. The number of injections varied from one to thirty-nine per patient and the number of visits, in which these injections were given, varied from one to sixteen. At one sitting we have given as many as eight injections.

LIGATION AND INJECTION

This method we have employed successfully without hospitalization and found to vary in its unpredictable reactions. In general, we inject eucupenprocain (Rare Chemicals), making a skin wheal on each side of the saphenous vein about two inches below the sapheno-femoral junction and below the knee. We also ligate and inject any other branches

Fig. 2.—Type Ligated in office.

deemed necessary. This may require two or more visits. As many as four ties were made at one sitting. Using a large curved needle with number twelve silk, the ligature is placed around the vein and tied on the skin surface over a small square of gauze. An injection of sodium morrhuate, 5 per cent, 2 cc. to 5 cc., is placed between the ties and an

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"elastoplast" or "ace" bandage is applied. "Elastoplast" has one disadvantage in that some patients are very sensitive to the ingredients employed in its manufacture and they experience a rather marked dermatitis even to the extent of the loss of rather large areas of skin which heals, however, quite rapidly. The silk sutures are removed within five to seven

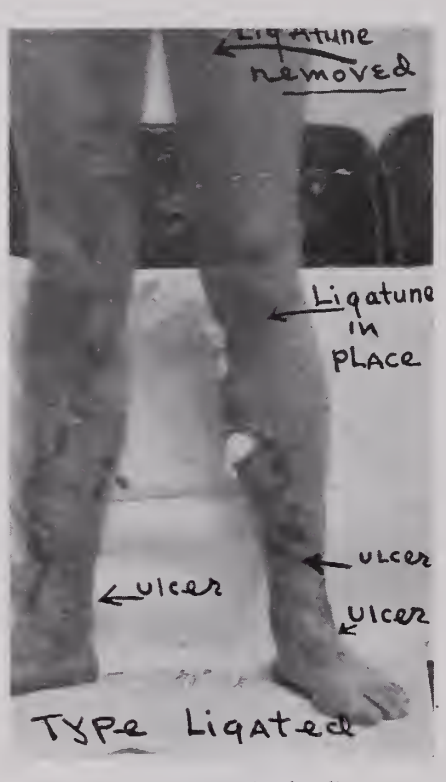

Fig. 3.—Case 400. The left leg has had ligature removed from upper thigh. This leg had more extensive varicosities than the right. Note absence of varicosities above knee two weeks after ligation and tie in office.

days after ligation, the patient being ambulant, with the exception of the first day, in most cases. One leg of a patient may present reddening and an extensive area of induration along the course of the vein accompanied by severe pain, whereas a week later the other leg with exactly the same treatment presents a painless history. Sometimes a patient states he has had a cold previous to the first injection. Where a history of infection, present or in the recent past, is given, the treatment is temporarily postponed.

Treatment of the perivenitis or phlebitis, when accompanied by temperature, was rest in bed, a dressing of Burrow's solution was applied and empirin (Burrough's Wellcome & Co.) was given orally. The longest period a patient remained in bed was four days. All patients who ran no temperature were advised to walk. Some patients seemed to improve by remaining in bed while others seemed to improve more rapidly while walking. The types of cases varied, some with mild or moderate varicosities, others with extensive areas of teliangectasis, and others with marked dilatation of both the internal and external saphenous veins associated with ulcer or areas of dermatitis. Some patients gave a history of wearing elastic stockings for years. One walked with a cane. The ages varied from nineteen to sixty years of age in both sexes. Some gave a history of previous thrombophlebitis which in our experience we do not consider a contraindication when the deep circulation is patent.

COMPLICATIONS

Ulceration.—Necrosis and ulceration may occur at the site of injection if a small amount is deposited outside of the vein or subsequently is permitted to leak.

Ulceration, other than necrosis at the site of injection, also occurred though the solution was not deposited outside of the vein. This occurred in four of our cases at least two inches from the site of injection. While the solution was being injected there was a sudden reddening, followed by a blanching to porcelain white, subsequently followed by a dark reddish discoloration. In one case about 1 cc. of sterile water was injected in this region and in the other three; a wet dressing was immediately applied. After from one week to eighteen days sloughing occurred until reddish granulation tissue appeared. These ulcers took from one month to six weeks to heal. Glasser,[2] Biegeleisen,[3] and others state it has never occurred with the use of monolate (Abbott). Two of our cases had this complication when we employed monolate. Two ulcers occurred with sodium morrhuate (Searles and Kirks). The ulcers varied in size from 1 cm. to 4 cm. and varied in depth from a superficial ulceration to about 1 cm. Six developed ulcers which were subsequently healed at the injection site.

Shock.—One case of severe shock resembling anaphylaxis has been previously reported by us. (*J.A. M.A.*, Nov. 27, 1937).

Fainting.—Six patients fainted momentarily while injecting or soon after the injection. Only two or three of these required adrenalin.

Urticaria.—Seven cases developed urticaria. In two of these it was so severe that the treatment was

temporarily discontinued and it was necessary to give ephedrine and calcium for about a month.

Pain.—Thirty-two cases complained of pain. Twenty-two complained of slight pain and muscle cramping for which treatment was not necessary. They stated that the pain and cramping was severe after sitting down or upon arising in the morning and disappeared upon walking. Two of these had associated phlebitis. Ten of the above number complained of marked pain—so severe that they had to remain in bed from one to four days. Six of these were associated with the next type of reaction.

Perivenitis and Phlebitis.—This occurred in eleven patients so severely that it was necessary for six to remain in bed from one to four days. In some of these cases the injection was given just below the groin. In only two of these cases the temperature was above 100 degrees. The temperature ranged from 99 to 101 degrees. Two had coryza and four were visiting a dentist while being injected for veins. Burrow's solution, rest in bed and salicylates readily alleviated this condition. The application of an "ace" bandage was found to lessen the pain in most of these cases.

Dermatitis.—Four cases had dermatitis. Two could directly be attributed to the "elastoplast" bandage. Two cases were due to the sensitivity of the skin to the injection. The entire legs were lobster red. Blisters occurred with subsequent exfoliation of the epidermis. One of these experienced generalized urticaria.

Swelling of the Ankle Region.—This occurred in five cases and occurred when the veins, about the level of the malleolus or lower, were injected. The edema disappeared on subsequent treatment consisting of rest in bed for about thirty-six hours. Infra red radiation was also given.

CONCLUSIONS

Any solution now employed may cause necrosis and ulceration if sufficient amount reaches the subcutaneous tissue.

The percentage was one ulcer in 500 injections, or six in 2,930 injections.

The necrotic area may form other than at the site of injection, and is probably due to changes in the vessel walls which permit escape of the solution into the tissue spaces.

Ligation, when indicated, and subsequent injections, in most cases, is an office procedure.

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PAROXYSMAL HEMOGLOBINURIA—REPORT OF CASE IN A CHILD FOUR YEARS OLD.*

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Paroxysmal hemoglobinuria is a chronic disease, due to syphilis, manifested by recurrent attacks of hemoglobinuria, during which there usually occurs certain constitutional symptoms. The blood of these patients contains an autohemolysin which at low temperature combines with the red cells and when warmed causes hemolysis. This manifestation occurs at any age and is three times more common in males. It is, however, extremely rare before four or five years of age. It is generally considered as a manifestation of late syphilis, congenital or acquired. Serological tests are found to be positive in ninety to ninety-five per cent of the cases.

Paroxysmal hemoglobinuria is an old but rare disease. Charles Stewart, in 1794, is usually credited with the description of the first case. Mackenzie, in 1928, reviewed the subject and found that there were less than 300 cases reported. Of the 156,000 luetics treated at Massachusetts General Hospital over a period of thirty years, only nine cases were found, and among 74,186 consecutive admis-

*From the Medical Service of Buxton Hospital.

sions at Peter Bent Brigham Hospital, there were only three cases.

In 1880 Rosenbach showed that an attack could be produced by immersion of a patient's feet in ice water for ten minutes (Rosenbach test). It was not until 1904, however, that the essential feature of the disease was discovered by Donath and Landsteiner, who developed the test so named for them. They showed conclusively *in vitro* that there existed a specific autohemolysin. The two phases of the reaction were shown to be (a) absorption by the erythrocytes of the lysin at a low temperature and (b) hemolysis of the sensitized red cells if complement is present. Donath and Landsteiner made the following observations on oxalated blood which had first been chilled and then heated:

Patient's cells + patient's serum → hemolysis.
Normal cells + normal serum → no hemolysis.
Normal cells + patient's serum → hemolysis.
Patient's cells + normal serum → no hemolysis.

The patient usually presents himself to the doctor with the complaint of voiding bloody or dark urine, variously described as the color of port or burgundy wine, coca-cola, brownish, black, or bloody. This usually is noted to follow exposure to cold or occasionally to follow exercise. There is usually a latent period from the time of exposure to cold to the passage of hemoglobin in the urine, during which time such prodromal symptoms occur as malaise, headache, abdominal cramps, backache, pains in the legs and sensation of chilliness. The actual paroxysm usually begins with a chill and subsequent temperature up to 104 degrees (F.) which is short lived. Then follows hemoglobinuria. The paroxysms usually last from two to four hours. The liver and spleen may be enlarged. There may be a mild jaundice. The blood pressure rises following the onset. The urine, besides hemoglobin, contains albumen, few or no red cells, the remaining routine findings being negligible. It is normal between attacks. An anemia follows the attack and about 10 per cent of the red cells are destroyed. There is an initial drop in the leukocytes with subsequent leukocytosis, and an increase in polymorphonuclear neutrophils. It is stated in the literature that there are cases of hemoglobinuria without symptoms and also cases of symptoms without gross hemoglobinuria. The following case is one of hemoglobinuria without symptoms.

CASE REPORT

A four-year-old negro boy was admitted to the hospital February 18, 1939, with the complaint of passing "dark bloody" urine. His parents noticed this for the first time in November, 1938, when he would occasionally pass dark colored urine once or twice during one day followed by remissions of several weeks. He had five or six attacks up until time of admission. This dark urine was never noticed in the first voided specimen on arising, but always after the child had been out playing and at the time of the paroxysm he usually had a "cold". Both mother and father were in good health and had no venereal diseases according to their knowledge. However, the Wassermann and Kahn on the mother were both four plus, while the Wassermann and Kahn on the father were both negative. There was no history of any tuberculosis. One brother, six, was well and had no history of a similar complaint. One child died seven days after birth, cause unknown. The mother had had no miscarriages.

On examination we found a very well developed and nourished negro child apparently in good health and of normal activity. The eyes showed numerous pigmentary deposits subconjunctivally in the sclera. The skin showed multiforme macular lesions over the chest, back, abdomen, and inner thighs. Both ear drums were granular. The teeth were dirty and had a few cavities. There was generalized lymphadenopathy. Blood pressure was 120/80. Moderate phimosis was present. The examination was otherwise negative.

On the day before admission the patient had passed dark wine-colored urine. The admission specimen was negative except for a trace of albumen. Subsequent specimens taken daily failed to show anything more than a faint trace of albumen, few pus cells and were quite normal in color. The intradermal tuberculin test was negative. Wassermann anti-complementary, and Kahn positive. A repeated test showed both Wassermann and Kahn to be four plus. The blood urea was 28 mgm. Icterus index (after two positive Rosenbach tests) was six. The spinal fluid showed no cells, and the spinal fluid Wassermann was negative. X-ray of the chest was negative. The Donath-Landsteiner reaction was negative.

The patient ran a constant but low grade fever with a slightly elevated pulse during hospitaliza-

tion. The paroxysmal attacks artificially produced had no effect upon the temperature, pulse, or respiration. On February 27 the patient's feet were immersed in ice water for thirty minutes (Rosenbach test). Three hours later he passed some dark brownish urine. The patient had absolutely no complaint and there were no changes in activity noted. Physical examination showed no changes from that on admission. Four hours afterwards the leukocyte count rose to 16,600 with 60 per cent polymorphonuclears. The erythrocytes and hemoglobin were uneffected. Subsequent urine specimens were essentially normal. The next day the Rosenbach test was repeated (feet immersed in ice water, 50°F., for thirty-five minutes). The patient, as in previous tests, presented no complaints or symptoms of any kind. Forty-five minutes after completion of the test, the patient voided dark wine-colored urine. One hour after the test, examination revealed that the blood pressure had risen to 140/90. Five hours previously it had been 112/80. The examination was otherwise the same as before. The T., P., and R., were unaffected. The leukocyte count (see Table) showed a decrease in white cells with a decrease in polymorphonuclears, which had increased to some extent one hour later. Five hours later the leukocyte count was 23,200 with 54 per cent polymorphonuclears. Fifteen hours later the white count was approximately normal while there was still an increase in the polymorphonuclears. The red cells still had not decreased, but had increased, the hemoglobin remaining the same. (The patient was taking fluids well.) The patient voided one hemoglobinuric specimen but the remaining were essentially normal.

It is the general consensus of opinion that antiluetic therapy is the method of choice, being the treatment which the patient is now receiving. At the writing of this report results of the treatment cannot be determined.

Date	Time	W.B.C.	Polymorphonuclears %	Mononuclears %	R.B.C. in Millions	Hgb. %	Blood Smear	Lymphocytes %	Monocytes %	Eosinophils %
2/19/39		3,500	65		3.34	65	No Malaria	33		2
2/25/39		10,600	44					50	6	
2/27/39	2:30 P. M. to 3:00	Rosenbach test—positive—voided at 6:00 P. M.								
2/27/39	7:00 P. M.	16,600	60		3.50	70	Hypochromia No Malaria	40		
2/28/39	1:25-2:00	Rosenbach test—positive—voided at 2:45.								
	1:20 P. M.	11,000	52	48						
	2:05	7,400	30	70						
	3:05	9,000	44	56						
	7:30	23,200	54	46						
3/1/39	10:00 A. M.	9,200	56	44	3.79	70				

DISCUSSION

We believe that this patient has congenital syphilis. To our knowledge there is in the American literature but one other case in a child younger than reported here. This case was striking in that the patient had none of the symptoms usually seen in the disease, that there was not a progressing anemia resultant from the two induced paroxysms and that there occurred an extremely high leukocyte count four or five hours following the exposure to cold.

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JAUNDICE IN TYPHOID FEVER—A CASE REPORT.

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Statistical studies reveal that jaundice is one of the rarest complications of typhoid fever. Only fifty-two cases could be found by Da Costa[1] in a survey of the literature prior to 1898. McCrae[2] found jaundice eight times in fifteen hundred cases. German statistics give an incidence varying from 0.14-7.14 per cent (quoted from Jennings[3]).

The cause of the jaundice seems to vary. In some instances it is described as a catarrhal jaundice; in others the liver reveals severe degenerative changes ("toxic jaundice") resembling acute yellow atrophy. It is most likely that both groups of cases are essentially identical, merely representing variations in degree of severity of degenerative changes in the liver cells (Klemperer *et al.*[4]). If cholecystitis with cholangitis or pylephlebitis and liver abscesses are found, it is reasonable to assume that these complications are due to superimposed infection with other microbes.

This case is being presented because the severe jaundice was associated with diffuse, hematogenous interstitial hepatitis.

SUMMARY OF CASE

A white male, aged twenty-two, a plasterer's helper by occupation, was admitted to the hospital on May 20, 1936. His past history was of no significance. He had never received typhoid vaccine. Ten days before admission he complained of fatigue, headache and generalized weakness, together with vomiting on several occasions and watery stools daily. The headaches and weakness persisting, his family physician advised hospitalization.

Physical examination revealed a lethargic, well nourished but dehydrated white male with a temperature of 103 degrees and pulse of 90. No jaundice or cyanosis. The lips were fissured, the mouth dry, and the tongue reddened and crusted. The chest and lungs were normal, the heart of normal size and there were no murmurs. The blood pressure was 102/70.

Laboratory Data:

			Blood				
Date	R.B.C.	Hgb.	W.B.C.	P.M.N.	Lymphs.	Mono.	Ret. R.B.C.
5/21/36	4,580,000	88	4,800	76	24		Less than 1%
5/27/36	4,200,000	85	3,800	74	26		Less than 1%
5/30/36			3,500	80	20		Less than 1%
6/2/36	3,200,000	60	3,400	60	39	1	1.6%

			Urine	
Date	Sp. Gr.	Albumin	Bile	Sediment
5/21/36	1.014	1 plus		Rare w.b.c.
5/27/36	1.003	1 plus	4 plus	Occ. r.b.c.

			Blood Chemistry					
Date	Icteric Index	Vanden-bergh	Sugar	N.P.N.	Chol.	Total Prot.	Alb.	Glob.
5/21/36	69	6						
5/27/36	100							
5/30/36	105	10	100	36	140	5.6	3.0	2.6
6/2/36	86							

The abdomen was flat, with slight tenderness over the right upper quadrant and a definite, firm, smooth, rounded mass over the gall-bladder area which extended eight centimeters below the right costal margin. The spleen was palpated four centimeters below the left costal margin. It was smooth and slightly tender. Many discrete, reddened macules that faded on pressure were noted over the abdomen and back. The extremities and reflexes were normal.

Wassermann negative. Blood, Urine and Stool Cultures positive for B. Typhosus.

Electrocardiogram—prolonged PR and deep S III.

M.C.V. 93, M.C.H. 31, M.C.H.C. 33.

Course in Hospital: The patient remained critically ill. His temperature varied from 102 to 104 degrees, the pulse rate from 80 to 110. Three days after admission he developed a marked generalized jaundice with an occasional severe pain over the gall-bladder area. Thirteen days after admission, i.e., twenty-three days after the onset of his disease, he was suddenly seized with a severe, agonizing pain in the lower abdomen, with rigidity and distention but no audible peristalsis.

One hour later an exploratory laparotomy revealed an oblong perforation of the ileum, three centimeters in length and four centimeters from the ileocecal valve. The gall-bladder was markedly distended with about one quart of bile-colored fluid, but no stones were palpated in the gall-bladder or ducts. The perforation in the ileum was sutured and the gall-bladder drained.

The patient was very critically ill and was given a blood transfusion of 420 cc., followed on the next day by another of 500 cc. He remained in a semi-comatose state and died forty-eight hours after the operation.

PATHOLOGY

At autopsy the findings were those typical of typhoid fever, with most of the ulcers localized in the lower ileum, some in the upper jejunum and some in the large intestine including the lower sigmoid. One of the ulcers of the ileum had ruptured but the margins were closely approximated by surgical sutures. The mesenteric lymph nodes were greatly swollen. The spleen was soft, weighed 500 gms., and the pulp scraped away easily on the knife edge. There was generalized fibrinopurulent peritonitis. Both lungs showed multiple hemorrhagic bronchopneumonia in the lower lobes. There was generalized severe jaundice.

The most outstanding histologic changes were in the *liver* which showed a marked perilobular infiltration consisting of lymphocytes, mononuclear cells and an occasional polymorphonuclear cell, localized mostly in the periportal areas, particularly around the portal veins and infiltrating their walls. The bile ducts were not involved, their basement membrane and epithelial linings having maintained their integrity and their lumina were free from cellular infiltration. Bile casts in the large and medium sized ducts were absent, although small casts were occasionally seen in the bile capillaries. The architecture of the liver lobules was not destroyed and the liver cell cords were not disintegrated. Most of the liver cells appeared to be intact except for some basophilic granulation and an occasional duplication of nuclei. They showed no evidence of degeneration except for a narrow zone in the periphery of all lobules where marked vacuolization was noticed, together with signs of degeneration of their cytoplasm. Mitoses were not encountered. There was slight edema of Disse's spaces. Some typhoid nodules were present.

Gall-bladder: Revealed rather marked subacute inflammation, especially immediately beneath the mucosa. The infiltration consisted of cells similar to those described in the liver.

Pancreas: There was marked interstitial pancreatitis with infiltration by cells of the same kind as those described in the liver, and, again, it was noticed that these cells appeared to follow the vessels rather than the pancreatic ducts.

Spleen and lymph nodes: Revealed the findings characteristic for typhoid fever.

Kidney: No changes except for a moderate amount of hemoglobin and hematin casts in the cortical and medullary tubules. There was no interstitial edema or inflammatory infiltration.

The other organs were essentially normal except for hemorrhagic bronchopneumonia.

COMMENT

Interstitial hepatitis of the type seen in our case is infrequently encountered in typhoid fever (G. B. Gruber[5]). It is most likely hematogenous in origin. The cellular infiltration in liver and pancreas is predominately found about the vessels, leaving the bile ducts and pancreatic ducts uninvolved. There is no evidence of an ascending infection. The character and distribution of the inflammatory infiltration are those frequently encountered in parenchymatous or-

gans in infectious or septic conditions and are nonspecific in nature.

To our knowledge a combination of jaundice and diffuse, hematogenous interstitial hepatitis has not heretofore been reported in typhoid fever. We do not believe that the jaundice results from the inflammatory lesion of the liver but rather that they are concomitant. On the one hand, interstitial hepatitis without jaundice is frequently associated with various infectious diseases. On the other hand, mere degenerative changes in the liver are found in cases of jaundice in typhoid fever (M. G. Berry[6] and others). The coincidence of jaundice and interstitial hepatitis in our case therefore does not indicate a causative relationship.

The icterus most probably is due to diffuse damage of liver cells and should be classified as "retention jaundice". We noticed regressive metamorphosis of liver cells in the periphery of liver lobules, but we assume functional disorder to be present throughout the parenchyma. Even severe jaundice of the retention type may occur with a minimum of morphological manifestation of degenerative changes in the liver, as in Weil's disease. That a mild degree of functional damage to the liver occurs in approximately 40 per cent of all cases of typhoid fever has been shown by K. Tschilow[7], who based his statement on galactose—blood sugar tests.

There is no evidence in our case that the jaundice is hemolytic in origin. The reticular cell count never exceeded 1.6 per cent. The hemoglobin casts in the renal tubules most probably resulted from blood transfusions which were given to the patient twenty-four and forty-eight hours before death.

SUMMARY

A case of typhoid fever with jaundice is presented. The liver at autopsy showed little degeneration but marked hematogenous interstitial hepatitis. It is concluded that the icterus is due to diffuse damage of liver cells and coordinated rather than causatively related to the hepatitis.

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PAGET'S DISEASE OF THE BONE IN THE FIELD OF OTOLARYNGOLOGY.*

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The clamor raised against medicine and particularly the agitation decrying specialists should give us pause and make us review our position and see if our professional skirts are clear. This subject of associated general conditions with sinus manifestations has caused more abuse, and probably merited abuse, to be heaped upon us specialists than any other. We need only to look back on the stacks of inferior turbinates removed from what we now know to have been allergic noses to hang our heads figuratively in shame. Need I mention the ovaries of two medical generations ago, the slaughter of appendices in the last, and the doubtful gastro-enterostomies of this, to keep our general surgeons down.

The subject of "Paget's Disease of the Bone" has been in mind for several years, but on looking over the literature I find that my old school-mate,[1] Sherwood Moore, of Washington University Medical School, Department of Radiology, has beat me to it, but I feel it should be presented from the otolaryngologist's viewpoint as well as from the radiologist's. It has eminent respectability, for Denninger[2] reports

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paleopathological evidence of Paget's disease and gives detailed description of this condition in five examples in pre-historic American Indian skeletons, excavated from mounds in the Illinois River Valley.

Its present importance was emphasized a few months ago by seeing a case, to be discussed later, who had undergone, according to her history, antrum puncture and lavage for fifteen months in Washington, in addition to eight months similar treatment in Lynchburg, all with no antrum disease. With this introduction and excuse for a specialist discussing a general question, this subject will be reviewed briefly.

PAGET'S DISEASE

A symptom complex first described by Sir James Paget in 1877, resembling and sometimes confused with Von Recklinghausen's disease (osteitis fibrosa cystica) complicated occasionally with osteo-genetic sarcoma, and probably due to some constitutional abnormality of the para-thyroids, though considered by some authors as of undetermined etiology. It is characterized by a rarefying process, later followed by condensation; the one process may follow the other so rapidly that they appear side by side. There is an increase of total bone volume and a later tendency to a generalized symmetrical involvement, but it may be confined to a single bone or area. When the osteitis is limited to the bones of special function such as the temporal or the sinus-bearing structures, great confusion of diagnosis results. It may give rise to deafness of undetermined etiology, which may be diagnosed as an oto-sclerosis. Nerves may be impinged upon by the increased volume of bone encroaching upon the bony channels and pathways, and neuridides of atypical symptomatology may result. Inflammatory conditions of the walls of the sinuses may be simulated, and reparative surgery attempted without successful outcome.

Etiology: By some writers this is still considered unknown, but the major portion of recent investigators seem to feel that the para-thyroids are basically to blame. Others consider it merely as an error of bone metabolism. This disease is considered to be one of the predisposing causes of an osteo-genetic sarcoma, before mentioned, and in such cases the prognosis is invariably bad. Some authors, particularly Merritt,[3] consider all cystic bone changes are due to para-thyroid over-activity, but do not consider that these diseases necessarily have a common origin.

General Manifestations: Coley and Sharpe,[4] in the *Archives of Surgery,* whose records of four large Boston hospitals present sixty-four cases of osteitis deformans, estimate one case of Paget's disease in fifteen thousand admissions in Boston hospitals, one in ten thousand at Johns Hopkins, one in thirteen thousand in Jefferson Hospital and one in fifteen thousand in Mayo Clinic, though specifying that in the Peter Bent Brigham Hospital one was found in three thousand. This they explain on the basis of the larger percentage of X-rays taken and they are of the opinion that the disease is much more common than the figures of the various hospitals would suggest, since these patients do not enter the hospital unless some complication arises and then may be classified on the records according to the complications and not according to the basic disease. Many cases are probably overlooked, particularly if confined to one bone, especially in early stages when there may be only an area of condensation among the trabeculae. Garland considers osteitis deformans and osteitis fibrosa cystica as histologically and anatomically identical. Sex does not seem to play a role in carefully analyzed series, though males seem to predominate in small series reviewed.

When the first manifestation of the disease is enlargement of the head, the individual notices that he requires a larger sized hat or his friends may notice the increase in the size of the skull. More complete studies do not find this so often a first symptom. Involvement of the spine causes the patient to become stooped, and round shouldered. The clavicles are bowed forward, the femur outward and the tibiæ forward.

Roentgenologically the skull presents a typical appearance. The bones are thickened from two to five times the normal thickness. The increase in thickness is confined entirely to the diplœ and outer table, so that there is no encroachment on the cranial cavity and consequently no symptoms of increased intracranial pressure. The process is one of bone rarefaction and condensation going on at the same time, causing a mottled "woolly" appearance of the thickened bone. The bones of the face are usually not involved; occasionally, however, the process involves the bones of the base of the skull, causing encroachment on the various foramina with development of symptoms depending upon the cranial nerve or structure involved; involvement of the petrous bone, for instance, may result in deafness.

Under certain circumstances, the bones of the skull may not undergo thickening, merely showing cir-

cumscribed areas of rarefaction. This condition is known as osteoporosis circumscripta. It is considered by many as a manifestation of Paget's disease, and indeed is often associated with the typical findings of Paget's disease in the long bone. It probably is the forerunner of the typical picture of Paget's disease in the skull, and numerous instances have been observed in which, after considerable period, this condition assumed definite characteristics of Paget's disease.

The long bones show an increase in bulk which is due to an overgrowth of bone, not to expansion. The cortex is thickened on both sides and bowing occurs on the side opposite to the greatest muscular bulk. Texturally, the bone presents a wide-meshed coarsely reticulated structure, in the interstices of which is a softer tissue relatively deficient in calcium. The outline of the bone is smooth, but there is irregular encroachment on the medullary canal. The trabeculae show rearrangement running longitudinally. As the disease progresses, bone sclerosis and condensation becomes more evident until the entire bone may become white and chalky in appearance, devoid of any evidence of normal structure. The mottled areas may extend into the ends of the long bones, thus differing from osteoplastic type of metastatic carcinomatous involvement and lues.

When the spine is involved the cancellous portion of the vertebral bodies is replaced by a dense calcareous deposit which produces a chalky appearance in the roentgenogram. There is no change in size or contour and the discs are well preserved. A similar picture is produced by metastatic osteoplastic carcinoma; unless other bones are involved, the two conditions cannot easily be differentiated.

Metabolic Studies: Detailed studies have been reported by Rabinovitch[5] based on work carried out in the Montreal General Hospital. Sodium, potassium and chlorine appeared to be practically in equilibrium. With respect to calcium, which constitutes 1.5 per cent of the body weight, and of which about 99 per cent is deposited in the bone, the defensive mechanism appears defective insofar as chemical is concerned. With a high calcium diet, the excretion is by the intestines, while with a fasting diet the urinary calcium is increased. In osteitis deformans there is distinction in the compensating calcification, that is, two opposing pathological conditions are simultaneously present—bone destruction and bone replacement. The phosphorus metabolism is likewise very important to the osseous structures, but beyond the conclusion that there is no secondary phosphate in the bone, nothing definite was discovered. Among etiological factors they mentioned were, of course, disturbances of the ductless glands. Sulphur metabolism was found independent of gland activity and its excretion dependent upon protein metabolism. While in the early stages the loss of calcium agreed with hyper-parathyroidism, other metabolic factors did not, in their definition, agree with a theory of hyper-parathyroidism.

On the other hand, increased phosphatase activity is found in both osseous and non-osseous conditions. This enzyme is formed according to Franseen and McLean, by the osteoblasts, and is naturally high in conditions of active or frustrated osteogenesis. This embraces rickets, hyper-parathyroidism, osteitis fibrosa cystica, Paget's disease, and the osteoblastic type of osteogenic sarcoma. Non-osseous factors which influence phosphatase include age, disease of the liver and biliary tract, and the general nutrition.

Diabetes as a causative factor was not given much place in this investigation, nor was syphilis. Vitamine deficiency was considered, but not much stress laid on it, nor did they consider phosphatase determination of much import in this review, but felt this condition belonged to the group of metabolic diseases.

On the contrary, Moehlig and Murphy[6] lay stress on phosphorus and carbohydrate metabolism and found that serum phosphatase increased from ten to fifty times. The familial influence is also stressed. Pituitary abnormalities and chronic cardio-vascular diseases were also considered as factors.

Local Involvements and Complications: Oral manifestations were reported by Thomas J. Cook, D.D.S.[7] Knoggs is quoted in this report as being of the opinion that Paget's disease, osteitis fibrosa, and osteomalacia are different reactions to some metabolic toxin and quotes Swift as saying "many cases that had been diagnosed as mandibular arthritis, trifacial neuralgia, chronic ethmoiditis, are now being correctly diagnosed as Paget's disease, due to routine X-rays for suspected sinusitis." This bears out the writer's opinion.

One of the most thorough analyses in recent years is that of Gutman and Kasabach,[8] published in the *Journal of Medical Science,* and it will be freely quoted. It was based on work from the Department

of Medicine and the Department of Radiology, College of Physicians and Surgeons, Columbia University, and the Presbyterian Hospital. Schmorl is quoted, reporting an incidence of about 3 per cent of cases in systematic post-mortem examinations in persons over forty years of age. The age incidence in this group can be taken as representative; one only was diagnosed in the twenty-five to twenty-nine bracket, and two other cases were traced back to an inception at that age, while in the above forty, twenty-two were in the forties, thirty-four in the fifties, forty in the sixties. In the 116 cases, twelve were discovered in routine roentgenologic examination of the gastro-intestinal tract, six cases in X-ray of the paranasal sinuses, none presenting signs or symptoms of Paget's disease so far as they had been previously aware. Eighty-nine of the 116 had not consulted a physician until after years had passed from the onset of the symptoms, and in twenty-five the physician was consulted because of some unrelated disease. In eighteen cases, the initial manifestations occurred acutely, and in six the first sign was pathological fracture. Headache, deafness and vertigo made up a large percentage of subsequent symptoms, but pain in the back, hips or extremities were the most constantly present findings. Yearly increase in the size of the hat worn remarked upon by early authors is not substantiated altogether, for, while fourteen had massive heads without obvious deformity of the extremities, nineteen had marked skeletal involvement without skull enlargement.

The roentgenologic considerations are stressed in all reviews of the subject; in fact, diagnosis is practically impossible without X-ray examination. In this connection, it is worthy of note that, while earlier commentators were inclined to minimize the frequency in the skull, among fourteen cases in this Gutman and Kasabach series, of single area involvements, eight were in the skull. Early lesions in long bones were confined almost invariably to one end of the shaft, or to both ends of the shaft; later the lesions converge. At any stage of the disease the lesions may become stationary, and at no time did they note generalized decalcification of the skeleton as seen in hyper-parathyroidism. They agree with most of the other writers in finding serum calcium and inorganic phosphorus in normal limits, and that blood phosphatase percentage is increased, but hold that this increase is in proportion to the extent of the involvement as shown by the X-ray.

Ocular Complications: Noted by Paget in his original contribution and reported frequently since, the complications noted have ranged from retinal hemorrhages, in the original report, with the bulging and protruding globes, through the entire gamut of eye diseases. It is easy to be seen that the anatomical changes are likely to produce pressure symptoms, atrophy of the optic nerve, and circulatory changes, giving rise to hemorrhages in the retina or choroid; and, of course, diplopias, due to displacement, but other changes cannot be logically explained as due to this disease.

Association with Malignancies: This was likewise commented upon by Paget in his third paper. Out of eight cases he was able to trace to their death, five died of sarcoma or carcinoma. Bird[9] reports 11 per cent sarcoma in sixty-four cases in his series; Garvey[10] reports a case of carcinoma arising in the sphenoid sinus, complicating a true Paget's disease in which the complicating eye symptoms, in the absence of the enlargement of the head, did not bring the underlying condition into suspicion until after skeletal X-rays. One case to be reported was complicated by a carcinoma of the antrum.

Mental Changes: Paget's original article stated that "even when the skull was largely thickened and its bones exceedingly altered in structure, the mind remains unaffected." Gutman and Kasabach found in their series of one hundred and sixteen cases before mentioned, two cases of dementia and two paranoics. They commented on the rarity of these cases, considering the change in the vertical diameter of the skull and the bones of the spinal canal and nerve outlets. Foreign authors seem to record more mental changes than can be found in the contemporary American writings on the subject. Clegg[11] reports a case with mental symptoms and undisputed intraocular changes. This case, curiously enough, became suddenly clear after a confusional state lasting eleven weeks, and died of an acute heart attack. Hartfall, who reported eighteen patients from the Leeds General Infirmary with no mental symptoms, then quotes Hahmm, Stander, Schrijver, Smith, Van Eeden and Kauffman, who had seen such mental conditions. It would seem logical to believe that from the physical changes alone, with the associated feelings of inadequacy, mental deterioration would not be unusual.

Treatment: In a personal communication to Dr. W. Ross Morris, quoting a paper or discussion, E. P. Corson-White outlines the following treatment:

first, "attention to all mechanical factors, i.e., flat feet, bowing—by braces and other mechanical aids to correction; second, attempting to prevent further deposition of improperly calcified bone; third, removing, by means of a slow steady decalcification, the already deposited calcium salts. To accomplish these last two, the patient is put on a diet adequate in all factors except calcium and phosphorus and these two factors are kept at or just below a maintenance level, i.e., calcium at .005 and phosphorus .01 gram per kilo of body weight. This is easily managed by a diet in which milk, meat, fish and fowl are reduced to a minimum and cheese is avoided. To this we add one level teaspoonful of magnesium carbonate four times daily. The effect of this regime is (1) to maintain a fairly normal level of elimination; (2) decrease pain and heat in the bones affected, (3) improve blood supply—all cases have a diminution of blood supply and show microscopically vessels with narrowed lumens; (4) a definite absorption of the pathologically deposited calcified material, (5) an increasing restoration of the marrow cavity. These may be demonstrated in X-ray pictures."

Merritt feels that those and other errors of the calcium and phosphorus metabolism, no matter how classified, are due primarily to some over-activity of the para-thyroids, for they alone control that metabolism and they can be corrected or helped by proper X-ray applications to the para-thyroid areas. Maes[12] quotes Ballin, of Detroit, who removed the parathyroids in Paget's disease, but without very satisfactory results.

REPORT OF CASES

Case I: M.C.G., a man in his fifties, who had a well marked generalized Paget's disease with all classical symptoms — spontaneous fractures, large head, shortened stature, and then an invasion of his right antrum, eye bulging, nose filled with mucopurulent discharge, which kept the alae of the nares eroded. This case was far advanced, diagnosis already made, but should the sinus involvement have preceded the skeletal changes, it could easily have been considered a sinusitis with an osteomyelitic complication.

Case II: J., a man in his seventies, tall, strong, and, while Jewish, had the square shoulders, slanting eyes and features commonly attributed to Don Cossacks. Had noted some stuffiness of his nose, especially the right side, for a year or more prior to coming to the office in February, 1938. His immediate symptom causing him worry was repeated small nose bleeds on the right side. Examination showed a large polypoid mass which bled easily on touching. One of his daughters was a trained nurse and it was immediately explained to her that this condition was probably malignant and a biopsy was necessary. This was done and the returned report from Dr. Cajigas' laboratory was to the effect that this was a carcinoma, low grade, roentgen sensitive. The daughter wished confirmatory evidence, so the laboratories of Dr. Hunter and also Dr. Lindsay at Garfield Hospital were sent specimens. All agreed on the diagnosis. Then came the question of procedure. Operation of any sort was refused by the relatives, though advised as first choice, both by consultants and myself; and as next best, radium and X-ray were considered. X-ray was agreed upon and given under direction of Dr. Merritt at the Warwick Institute in connection with Garfield Hospital. Routine X-ray of the sinuses and skull, to determine the extent of involvement, were done and showed a Paget's disease of the bones, but of a condensing type. The case from then on was the usual one of malignancy, better at first, then active again, and resulted in death on January 29, 1939. This connection of Paget's and later malignancies has frequently been commented upon.

Case III: Mrs. X., a woman in her early thirties, presented herself as a sinus patient, stating that all her treatment had been unavailing—that she had had her antrum punctured and washed out for nine months at Lynchburg, Virginia, and fifteen months since her arrival in Washington, and was no better,—in fact, was worse and she could not stand further treatments, which she had been having twice a week. The right side of her face was swollen, and her right eye was considerably more prominent than the left. She complained of diplopia and movement of the right eye was limited. Examination of the nose was negative for free nasal pus. No history of lues was obtained. X-ray was ordered and a diagnostic puncture of the right antrum was made and found negative. She stated that no previous X-ray examination had been done, nor had there been any blood test. The swelling and thickening of the bone over the malar and super-orbital regions resembled either a gumma or Paget's.

The blood test came back Wassermann four plus, and the X-ray showed marked Paget's of the skull, skeletal X-rays confirming this.

CONCLUSIONS

1. This condition is not so rare as generally supposed.

2. An appreciable percentage occurs in the field of otolaryngology.

3. These cases can be diagnosed easily by proper use of X-ray and much useless local treatment be avoided, and no opprobium incurred by workers in our field.

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THE SOCIALIZATION OF CHILDREN.

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Socialization is the gradual developmental process desired during the childhood period and should be accomplished at the end of puberty. The ability to secure satisfaction from the association with other individuals and to live in harmony with them is the goal to be reached. This conditioning of the child depends upon early experiences and the innate urge to overcome obstacles. There would be little difficulty if this process of development was not interrupted by environmental and physical handicaps. These handicaps produce maladjustments which alter the behavior of the child, often to such a degree that he becomes anti-social, and a menace to the community. The following facts emphasize these unfortunate events and attempt to offer a satisfactory solution.

The baby soon begins his fight to overcome the various obstacles which prevent his realizing his desires and all his efforts are directed toward a single goal. The members of the family help him to achieve the desires and reward him when he masters obstructing forces. The feeling of pride and the desire to accomplish more is clearly manifested by the child during this early period of development. Everyone in the home is willing to cooperate and to make the task as easy as possible without the child's becoming aware that he is receiving help. As a result of this type of supervision, the child gains confidence in his ability to overcome difficulty and finds an adequate outlet for the various emotional drives. The urge to dominate others plainly manifests itself at this early age and by careful supervision is controlled so that it does not become complete master of the child.

The directing of this urge is necessary not only to the child but also to the other members of the home if harmony is to be preserved. Adequate training in the home during this period is essential for

emotional stability and adjustment in later years. When these early urges are guided in this manner, it is possible for the child to realize that there are certain limitations to his ability to overcome obstacles and dominate his environment at the same time he is given proper substitutes, thus preventing a thwarting of the various emotional drives. Thus, we find that the child, as he develops, is a friendly, emotionally stable and resourceful person who gains a great deal from the association with others, or, in other words, socialization has taken place.

This process of development is essential in order that the individual have a well integrated personality which will determine the degree of success and the fullest measure of happiness in life. This is the goal of every individual and it cannot be measured in monetary value.

The difficulty encountered is that this intelligent process of development does not often take place as described because many interruptions occur which cause disturbances. There are few homes in which the parents are capable, by training, intelligence or financial means, of guiding the child's development in the proper channel. The result is that obstacles are placed in the pathway and no efforts made to help overcome them so that the child is constantly being thwarted. This may be done by the constant response of the parent to any urge on part of the child of "no, don't do that"—until rebellion is necessary before there is any emotional outlet. There soon follows the loss of respect of authority, disobedience, emotional outbursts and the formation of bad habits.

In such situations all the ideals of mental hygiene are disregarded in an effort to force the child to submit to the complete dominance of others, which at best can only be temporary.

Usually in such instances by the time the adolescent period is reached the child has openly thrown aside every parental tie, rebelled not only against the home but carries over this feeling to society and becomes a community problem. In addition, he is rejected by the family and all the individuals within this circle, so that he has to seek any kind of companionship available in the effort to satisfy this urge to dominate. This finished product is that of an anti-social individual, with such a well-formed habit pattern that it will be difficult, if not impossible, to alter.

To explain just how this may take place, one may consider statistics from the State Bureau of Mental Hygiene located in Richmond, that examines children committed to the Department of Public Welfare from every county in the State.

During the year 1937-38 there were 549 boys and girls, both white and colored, committed to the Department and studied in the Mental Hygiene Clinic because they manifested anti-social conduct. An analysis of this group showed that about 80 per cent came from broken homes; that is, one parent away from the home—leaving the other to support and guide the children. Most of the homes could be classified as dependent type, a few marginal and a very few as independent. Thus, it is seen that the environment in which the child spent the most important developmental years, offered little, if any, security and was devoid of any adequate training. These children soon had to depend upon their own efforts of securing the very necessities of life without anyone to correct them if they used anti-social measures. In some cases the parents would teach them to steal and beg for money which they would use in the home instead of working.

Psychological examination revealed that about 50 per cent of this group of children were handicapped mentally and could be classified as feeble-minded. They could not do the school work required of the fourth and fifth grades, yet they were punished for not attending school when they had passed their level. This created a new situation outside of the home in which the individual found that he could not compete with other children, was considered a problem by the teachers and was given little consideration by the community.

The average age of these children was about fourteen years which is the period of adolescent when many new problems are encountered and stronger emotional responses are evoked. After the repeated failure of those in the home to bring about any degree of socialization of these children by means of corporal punishment, an appeal is made to the local police and the court and further attempts are made if there are available facilities. Usually this consists of reporting to the probation officer, during which period the individual is rejected openly, not only by those at home but also by the school authorities and other people in the community as he is considered a bad influence. Not infrequently he is told that he is a criminal, will always be bad and will finally be sent to a "reform school".

With these added obstacles placed in the pathway, the child feels doomed and loses all hope of ever regaining the self-respect which is so desirable. There is the constant fear that any day he may be sent somewhere and receive more punishment. Instead of doing better as a result of such threats, fear removes all possibility of logical thinking and strong emotions force the individual to follow the old habit pattern of rebellion against society. Additional antisocial conduct follows and the individual is sent to Richmond for examination and care by the State Department of Public Welfare.

The procdeure followed when the child is received in Richmond is to place him in a special boarding home on the outskirts of town where proper care is available. The social workers of the Children's Bureau interview the child and obtain reports concerning the type of behavior from the foster parents. All available information is obtained from the local community in order that the parents and environment are understood. At a later date complete physical, psychological and psychiatric examinations are made. With all this data at hand a conference is held to discuss plans and decide upon the type of placement that offers the best possibilities for this particular child. Further psychiatric and vocational training are necessary in affecting an adjustment, so that the child may learn new habits.

A few specific cases may be cited to illustrate the above facts:

Case I.—H. P. H. is a white boy, thirteen years of age, who was referred to the clinic because of his abnormal behavior. The family physician stated that seven months ago a change in personality was noted and his condition had become more difficult to manage. The patient's mother is an invalid as a result of arthritis deformans. The father is a drug addict and was committed to the Eastern State Hospital some years ago. The maternal grandmother has chronic heart disease and the maternal grandfather died recently of cancer of the face. The home consisted of five rooms and was supported by various Churches and the county.

Physical examination showed only a moderate degree of anemia.

Psychological examination showed the patient to have a mental age of twelve years and four months.

Psychiatric examination revealed many fears, a marked religious trend and delusions of persecution. He was seclusive, tearful and would spend much time day-dreaming. He refused to eat meat cooked over a wood stove and would not allow any paper with printed matter to be burned. The patient was placed in a boarding home and under treatment showed gradual improvement. Last report stated he was making a satisfactory adjustment in the community as the home situation had improved and he had a good insight into his condition.

Summary: Patient had a definite schizoid reaction and improved under adequate treatment.

Case II.—M. W., a white girl, fourteen years of age, was committed to the Department as delinquent and was examined in the clinic. She was the third of seven children and home conditions were poor due to the father being an alcoholic and unable to support the home. The mother rejected the patient and quarreled with her constantly.

Physical examination was essentially negative.

Psychological examination showed patient had a mental age of ten years and nine months. At that time she was over-placed in school.

During psychiatric examination patient stated she was badly treated at home, her father made improper advances to her and threatened to kill her if she told anyone. Older brother and sister would call her "names". She was tearful and despondent as a result of the past difficulties in the home.

Patient was placed in a boarding home and returned to the clinic on frequent occasions for treatment. She made a good adjustment and is now in a wage home.

Summary: Patient reared in poor home and was badly mistreated. When removed she did well and has made a good adjustment in a home in Richmond.

Case III.—R. X. is a white boy, eleven years of age, who was referred to the clinic for examination because of his failures in school.

The home was of the marginal type and parents had little understanding of the situation. They would call patient "dumb", quarreled with him and punished him for his failures.

Physical examination was essentially negative.

Psychological examination found him to be of average intelligence, with a mental age of eleven years nine months. Patient was in the fourth grade when he should have been in the sixth. Patient was tense and over-active during the examination and had very poor concentration. He seemed "to go blank" on arithmetic problems and said himself that

he "gets nervous" when he has to read. His vocabulary was average for a fourteen-year-old and he expressed himself well. He also had a good fund of general information but could not seem to master these simple fundamentals of schooling.

Psychiatric examination revealed that he disliked his teacher in the first grade. She required too much of him and fussed at him when he did not do right. Gradually he began to become tense, block emotionally and do poorly when asked to read or do arithmetic problems before the class. He failed the fourth grade which he is repeating and now hates school—although he has the mental ability to do successfully the work of the sixth grade.

Summary: Patient's family did not help the situation by quarrelling with him and punishing him for his failings. He was an unhappy, tense, neurotic little boy because of his mismanagement.

Our desire is to prevent the difficulties illustrated above and to keep the children in the local community. This lessens the mental shock incurred in transporting a child to an entirely new environment which he does not understand and which he approaches with fear. There is difficulty of over-coming this fear and establishing a feeling of confidence following such an emotional turmoil. The additional factor to be considered is the expense involved in such a procedure, and if more economical methods are available they should be used. To accomplish this, traveling clinics were established to study the child in the community and learn at first hand the home situation. This enables the clinic staff to interview the parents, visit the home and have the opinion of other people in the community. A great deal more information is gained in this way which could not be obtained in any other way and a better evaluation of the conditions made. These clinics have proven very successful and have made it possible to adjust many individuals without requiring them to leave the community.

Our only handicap is the limited time given to traveling because of the pressure of the work in Richmond. A single personnel cannot do adequately all of this work in an intensive manner and distant counties cannot be visited.

The requests for clinic services are increasing, so that it is impossible to comply with them all, and, as a result, many children are being sent to Richmond for care who probably could have adjusted had they received early treatment.

The school teachers need advice when confronted with problems and clinical services should be available. There should be adequate instruction of the teachers in the fundamentals of Mental Hygiene in order that they may recognize the various disorders of behavior and refer the child to the proper place for study.

There is a need for well-organized vocational classes to train those children who reach their limit in formal school education at an early age and should not be dismissed from the school to wander about the streets. This is a responsibility of the school system and, in order to prevent maladjustment, it is imperative that such classes be established in schools in the counties. To prevent delinquency some states have raised the compulsory age limit of the school child to eighteen years and are establishing vocational classes which will train the individual to enter some trade.

The local community should bear more responsibility where children are having difficulty and attempt to adjust them before sending them to Richmond. To accomplish this, a change in attitude is necessary which can be brought about only by a better understanding of the cause of problem children, or, we should say, "problem parents".

In order to prevent behavior problems, mental diseases and criminality, it is essential to have the aid of every physician and social minded individual.

(1) This is essential in producing a change of attitude on part of the parent and school teacher in dealing with behavior problems. In a like manner it is possible to produce a change of attitude in the child toward himself and his environment.

(2) Create additional facilities for the study of children having difficulty either at home or in school. This may be achieved by an expansion of the Bureau of Mental Hygiene—to have traveling clinics which could visit all parts of the State and do intensive child guidance work.

(3) Re-organization of the school system to make available proper training for the retarded child and physically handicapped. This would include vocational classes, speech and reading training.

(4) Increase the recreational facilities of the various communities in order to afford supervised play for the children and thus promote socialization.

(5) Dispel prejudice concerning anti-social conduct and mental disorders by a broad educational program along the ideas of Mental Hygiene. This

could be accomplished by discussions with various organizations such as P.T.A., Woman's Clubs, Civic Clubs, and Church groups.

(6) The physician should emphasize that the behavior of the child is the result of environmental influences and that definite patterns are formed by reacting to everyone who comes in contact with the child. The physician should also emphasize the fact that each problem is an individual one and requires careful and complete study.

Correspondence

Dr. Peters' Reaction to "The Changing Era in Medical Economics".

New Haven, Connecticut,
November 18, 1939.

TO THE EDITOR:

My attention has been called to the following passage in the Presidential Address of Dr. Alex F. Robertson, Jr., "The Changing Era in Medical Economics", which was published in your JOURNAL (1939, 66, 641, Nov.):

"Added impetus was given this drive by the so-called revolt of the committee of 430 physicians against the A.M.A. in the fall of 1937, which made headline news, and was followed by many articles in lay magazines, attacking the stand-pat attitude of the A.M.A. It is an interesting fact that not one of the 430 physicians resigned from the A.M.A.'s roster of 110,000 members."

The speaker seems to imply that resignation is the only measure by which a minority in this organization can properly express its disapproval of the policies of the majority. He is not the first to air this opinion which seems to violate the first principle of democracy, the liberty of minorities to voice and to further their convictions. It was in defense of this liberty that a delegation from the Committee of Physicians demanded and secured from the Board of Trustees of the American Medical Association the publication in *The Journal of the American Medical Association* (1938, 110, 141B, March 12) of a statement of its position. In presenting this request the members of the Committee were exercising their prerogatives as members of the American Medical Association; in acceding to the request, the Board of Trustees acknowledged this prerogative. In its statement the Committee asserted that

"the *Journal* should maintain the same unprejudiced attitude towards the social and economic problems of medicine and public health that it holds towards clinical problems, providing an open forum with room for minority opinion and welcoming any new ideas which are honestly and intelligently presented. Furthermore, in our opinion the *Journal* should seek to stimulate simular free and open discussion among local medical societies and in local medical journals."

There is too much insistence upon the unanimity of opinion in the American Medical Association. Democracies are wont to look askance at nations in which unanimity reins and to condemn in no uncertain terms those in which disagreement with policies of the existing government necessitates termination of citizenship. Fortunately the record proves that the Committee of Physicians is not the only body within the medical organization that has recently challenged and proclaimed its right to challenge the official policies of the Association from within its ranks (cf. *Bul. Am. Col. of Surg.*, 1934, XVIII, 3, June; Am. Neur. Soc., Minutes Second Executive Session, 63rd Annual Meeting, June 4, 1937). Furthermore, attempts to curb expressions of opposition have not met with uniform success. The New York State Medical Society, for example, repudiated the following amendment to its by-laws, when it was submitted by the Council of the Society:

Chapter XV. *An additional Section 7 to read:* "Sec. 7. The component county Medical Societies, their officers, committeemen and members shall not initiate any policy, propose any legislation or participate in any activities that are contrary to the policies of the Medical Society of the State of New York. This shall not be interpreted to prevent a component County Society from initiating any policy applicable to the profession within its boundaries and within the framework of adopted policy of the Medical Society of the State of New York."

In a statement sent to its signatories May 5, 1939, the Committee of Physicians defines its position in the following words:

"The Committee wishes to reassert the adherence of its members to the American Medical Association and its insistence that they and all individuals or groups have not only the right, but the obligation to discuss freely any subject affecting medical practice, even if their opinions conflict with the policies and actions of those governing any medical organization."

Infringement of this right can only increase the obligation.

JOHN P. PETERS, M.D.,
Secretary, Committee of Physicians for the Improvement of Medical Care, Inc.

Miscellaneous

Medical Service Through the Farm Security Administration.

EXPERIENCE OF THE NORTHAMPTON COUNTY MEDICAL SOCIETY

EDITOR'S NOTE.—Dr. W. Carey Henderson, secretary of the Northampton County Medical Society, advises that this is a voluntary presentation, not authorized by his Society, and, of necessity, matters of opinion are entirely personal. As secretary, the records are in his hands and he states that the figures are correct.

It is felt that this statement will be of interest to those societies which have adopted the Farm Security Administration plan for medical aid to farm families endeavoring to rehabilitate themselves, or to societies considering adoption of the plan.

Northampton County is essentially a farming section as is Accomack County, our only contiguous neighbor. We have in the county ten doctors in general practice, four doing specialized (hospital) practice, one laboratory specialist, and two colored doctors. The general practitioners also enjoy membership on the courtesy staff of hospital which serves both counties. To the best of my knowledge and belief all are strictly ethical.

The Medical Economics Committee of the Medical Society of Virginia outlined to its Council the plan of the Farm Security Administration whereby farmers can budget a loan to include payment for medical service. Minutes appeared in the March, 1938, VIRGINIA MEDICAL MONTHLY. The report of the Committee was adopted by the House of Delegates at Danville in 1938, as noted in the November issue of the MONTHLY.

In pursuit of further information as to the plan, we had a letter from Dr. R. C. Williams, Medical Director of the FSA in Washington, D. C., a portion of which is as follows:

> ". . . may I say that the Farm Security Administration works out plans with county medical societies for the medical care of the low-income farm families whom we are endeavoring to rehabilitate, in those counties where the number of families justifies such action. Obviously, if there are only a few families in a county, the expenditure of such effort on a small group of families is not justified."

There followed a conference including members of both county medical societies and members of the Rural Rehabilitation organizations in the two counties. It was estimated that there were probably fifty families in Northampton and possibly 200 families in Accomack County eligible to the service. It was thought best to have separate organizations in the two counties. The plan in the two counties is essentially the same, although each county society makes its own agreement with the FSA. Below are listed some of the outstanding features of the plans suggested:

1. The plan must be voluntary on the part of each client of the FSA, voluntary on the part of each individual physician, and there must be free choice of the physician.

2. Fees to be charged should be those usually charged people of low income. Where medicines are administered by the physician they may be charged for. No allowance is made for prescriptions nor for dental service.

3. Since the laboratory offers an essential service to the practitioner, laboratory charges are submitted in the same way as those of the doctors attending the patient.

4. Where doctors practice across the county line, bills are sent to the FSA office in the county in which the patient lives.

5. Each county medical society has a committee to pass upon the worthiness of each bill presented. A majority decision of the committee is final.

6. Although the colored doctors are not members of the society, they are to be considered in the same light as other practitioners as far as bills are concerned. (This by vote of the County Medical Society.)

7. Payments are made by the month for services rendered by the month. No carry-over of bills allowed.

8. Lists of participating families were sent to each participating doctor, and *vice versa*. Where deletions are made doctors are likewise notified.

9. Emergency hospitalization is allowable. Twenty-five per cent of the total amount set aside from the loan for medical service was earmarked for this purpose. There is no allowance for surgical fees but the surgeon may charge for daily visits at the prevailing rates for home visits.

10. Each doctor as well as the hospital agrees that the amount paid by the FSA will be accepted as payment in full for the services rendered as adjusted on a yearly basis.

As this plan has worked out in Northampton

County the following facts may be of interest to other county societies contemplating the same plan:

1. Allowing 3 per cent for administrative purposes, about twenty-six families receiving FSA loans, and an average of $20.00 per family per year set aside for medical service, there has been available to the doctors giving such service a total of about $38.00 a month.

2. Nine doctors have presented bills for services. There were three bills for hospitalization. Four doctors had bills only during one of the months; two had bills during two months; others during practically every month.

3. As judged by the first half year, the individual practitioners have received approximately 73.2 per cent of the amount of the bills rendered. The hospital received approximately two-thirds of the bills rendered. (In Accomack County, which has a much larger list, the percentage received by the doctors was only 51.74 per cent of the bills rendered.)

4. Infractions of the system have been minor. In one or two cases it appeared that the bill had been "padded". There has been one family which has demanded more than its proportionate share of medical attention. These matters will vary with the community and with the influence of the County Medical Society.

5. It is the general feeling of the profession in Northampton County that the amount received from this plan for medical service is in the nature of a bonus as it is unlikely that anything like an equivalent amount would have been received had the same services been rendered the same patients but not participating in the plan.

Public Health Statistics

I. C. RIGGIN, M. D.
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for October, 1939, compared with the same month in 1938 follows:

	1939	*1938*
Typhoid and paratyphoid fever	82	66
Diphtheria	201	201
Scarlet fever	100	88
Measles	35	12
Meningitis	6	5
Poliomyelitis	13	5
Rocky Mountain spotted fever	11	7
Typhus fever	1	1
Undulant fever	3	5
Tularaemia	8	2

DIPHTHERIA

Although there has been a reduction in the number of cases of diphtheria reported during the months of July through October of the present season over the same period in 1938, the incidence of this disease continues to remain above the previous five years' average. It is difficult to ascribe this high prevalence to one single cause, since a number of factors undoubtedly influence in some degree at least the present situation.

Of considerable importance is the fact that inoculation of infants and children younger than school age has lagged far behind the school child in the general diphtheria immunization programs. The significance of this failure is readily appreciated when it is realized that 89 or 72 per cent of the total deaths (124) from diphtheria in Virginia in 1938 occurred in children under six years of age. Aside from the effect on mortality represented by these figures, the failure to reach a significant proportion of the younger age groups likewise plays an important part in the morbidity of this disease. It has been shown by prominent authorities that unless approximately 30 per cent of the younger age groups, in addition to 50 per cent or more of the school population, are given preventive inoculation, no marked reduction in the incidence of the disease can be expected.

An intensification of effort is therefore indicated toward the objective of including a larger number of children under the age of six years in all diphtheria immunization programs. This objective has been incorporated in the plans of all of the local departments of the State Department of Health. It is not to be inferred, however, that the school programs are to be neglected, but rather that they be continued with the same force and supplemented with the additional effort to reach the pre-school population.

The relationship of the type of diphtheria organism to the severity or prevalence of the disease has received considerable attention and comment by a number of workers both in this country and in England. In an effort to determine what influence such a factor may play in Virginia, the Department has undertaken a study to classify all positive cultures of diphtheria from every section of the State according

to their cultural and morphological characteristics. This investigation will be continued through the present season and the cooperation of the physicians in submitting cultures from all cases will add greatly to the value of this work.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HENRY A. LATANE, Alexandria.
President-Elect—MRS. GRIFFIN HOLLAND, Eastville.
Recording Secretary—MRS. T. N. HUNNICUTT, Newport News.
Treasurer—MRS. REUBEN F. SIMMS, Richmond.
Parliamentarian—MRS. JOSEPH BEAR, Richmond.
Chairman, Press and Publicity—MRS. HENRY M. SNEAD, Petersburg.

My Christmas Message.

MY DEAR CO-WORKERS:

As your chosen leader I wish you all a very Merry Christmas and a Happy and Successful Year. I sincerely hope in our work together this year we will accomplish much that will be of lasting benefit to the profession.

Christmas time is the one time of the year when our hearts are most tender toward all mankind, when our ideals are at their highest. It is a splendid time to repeat our motto "Be and not seem"—being friendly, sincere in our work, prompt in the execution of all duties and cooperative always.

Because of conditions today it is the sincere belief of your president that the most important work for us to undertake this year is Health Education and Public Relation. The chairmen of these committees believe as I do and have mapped out a splendid program, one that carried out will, I am sure, be of great educational value throughout the State. I shall expect and feel sure we will have the hearty cooperation of every member of the Auxiliary throughout the State. I feel justified in expecting you to carry out the program as it will be presented to you for there is so much at stake.

Your Public Relation Chairman is ready to help you and is thoroughly conversant with the work. She is ever alert for opportunities to better the understanding between the medical profession and the lay public as outlined by organized medicine. We believe that each member of the Auxiliary should grasp every opportunity to serve lay groups and to bring to every group of earnest women dependable knowledge and some appreciation of the achievements and purpose of the medical profession.

The Chairman of Program and Health is cooperating with your Public Relation Chairman and has worked earnestly and thoughtfully on her outline. We realize that these outlines and suggestions must be adopted to your local needs. Use all or a part of her suggestions, always consulting your County Advisory Council. Remember the American Medical Association is ready to send you material on Health Education. Perhaps the very best way to get to the public a comprehensive idea of the purpose of the medical profession is through the distribution of *Hygeia*. If every Auxiliary member could procure only one subscription to *Hygeia* our reward would be in the hundreds of people that would benefit by this health education.

Let us not forget the dramatized health messages coming to us over the radio. Make a point of listening ourselves and interesting other people. In no other way can there be such a wide distribution of knowledge in a short space of time. Let each one of us study all matters of legislation pertaining to the profession so we may speak and vote intelligently on passage of legislation benefiting the public and the profession.

As to Press and Publicity—read the Woman's Auxiliary page in the VIRGINIA MEDICAL MONTHLY and promptly send to the State Chairman an account of the interesting things you are doing.

Let us not forget the Leigh-Hodges-Wright Memorial Fund. Surely this is one of the finest things we can hope to accomplish, helping restore health to one of our own profession.

Your Exhibit Chairman is very earnest in her efforts to depict in her exhibits the work of the County Auxiliaries. Help her with suggestions and answer her letters promptly. Let us have the best exhibits we have ever had both national and State.

The Jane Todd Memorial Chairman is full of enthusiasm. Help her in every way you can, in this way helping Virginia to give her share toward the memorial for this splendid woman, Jane Todd.

Your Cancer Control Chairman, your Historian Chairman, your Membership and Finance Chairmen will all contact you. It only takes a few minutes to respond. If each of us takes that short space of time

and cooperates, think what a marvelous year we will have.

From the Organization Chairman and her committee I expect great things. Already we have the promise of one new chapter. I wish we might organize one each month.

In conclusion I wish to say—if at any time I can be of any assistance to any one in any way, I stand ready and willing to do so. The tapestry we weave this year must be perfect. There can be no careless work. Our predecessors started a magnificent piece of work, let us weave on smoothly, efficiently, wisely and turn over a piece of work of which we shall be proud.

With Tiny Tim I say "God Bless us everyone".

POLLY GRAHAM LATANE,
(MRS. HENRY AUGUSTINE LATANE.)

Another Christmas Message.

As the oldest member of the Auxiliary, both State and National, I have been asked to write our doctors' wives a Christmas message.

I extend to each a most cordial greeting, a word of good cheer and friendliness, a word of courage, courage to support our mission to the medical profession, courage to assume responsibility and leadership in this work.

The State and National Auxiliary's work this year is: "To bring about a better understanding between the members of the profession of medicine and the public which is the recipient of medical service". The National Advisory Council has suggested that "Public Relations" be given special consideration.

My New Year's message is self-information. Our Virginia Auxiliary needs education and cooperation. It is pledged to that little word—"service". In order to be of real service, we must be able to discuss medical affairs intelligently. Much can be accomplished over our tea cups, bridge tables, and in our clubs, churches, etc. To do this, our women must be informed. Every doctor's wife, whether she is a member of the Auxiliary or not, should know the aim of the medical societies, county, State and National.

In looking down the years since the Auxiliary to the American Medical Association was organized, in June, 1922, with Virginia following in October, 1922, it is most gratifying to see the development of this unique organization. Unique—for it is the only one of its kind. Organized only to assist the medical profession and working entirely under its direction. The first request of the Auxiliary, by the American Medical Association, was to assist in its campaign of preventive medicine. So many contagious and infectious diseases have been conquered, and now this year's report is "the healthiest on record".

For self-information, I would urge that we first acquaint ourselves with the principles and policies of the medical societies, and at all times cooperate with them.

The medical constitution reads: "The objects of this Association are to promote the science and art of medicine and the betterment of Public Health".

We should familiarize ourselves with "The attitude of the American Medical Association toward the proposal of the National Health Conference". Study the pending "Federal Medical Legislation", and especially the "Wagner Health Bill". Read regularly the "Auxiliary News", the Woman's Page in the VIRGINIA MEDICAL MONTHLY, Auxiliary "notes" published in the *American Medical Association Journal*, and *"Hygeia"*. Dr. R. G. Leland's articles—"The Health of Forty Million People" and "Is Medicine to be Socialized" are most interesting.

The recommendations of the American Medical Association concerning health insurance, are published in a pamphlet entitled "On the Witness Stand", by J. Weston Walch.

Pay attention to Radio health programs, sponsored by the American Medical Association and the local medical societies.

We know that all medical discoveries are given freely to the world, and that the United States is truly called "teacher to the world in discoveries, organization, and preventive medicine". The doctor's wife can pass this information on to other organizations.

Today the profession needs the assistance of its auxiliaries more than ever before. There is so much confusion and misunderstanding concerning the profession, due mostly to misinformation on medical problems by politicians and well-meaning welfare groups.

It is the duty of the doctor's wife to keep informed, for we pride ourselves, not in following after, but in keeping in step or abreast with our doctors.

I hope I have stressed our needs, and that there will be a more complete understanding of our responsibilities and ideals. May we be fired with the determination to work more diligently for this or-

ganization that offers such great possibilities of service.

Sincerely and affectionately,

ALICE LEIGH,
(MRS. SOUTHGATE LEIGH.)

Petersburg Auxiliary.

The Petersburg Unit of the Medical Auxiliary held its annual business meeting at the Nurses' Home, on October 31, with Mrs. C. W. Lynn, acting President, presiding.

A splendid report of the State Meeting, which was well attended by members of this Auxiliary, was given by Mrs. W. B. McIlwaine. The following new officers were duly elected and installed: President, Mrs. W. B. McIlwaine, III; President-Elect, Mrs. J. B. Jones; Vice-President, Mrs. Munford Yates; Recording Secretary, Mrs. E. L. McGill; Corresponding Secretary, Mrs. C. S. Dodd; and Treasurer, Mrs. H. C. Jones.

After taking the chair, Mrs. McIlwaine announced the following appointments for Standing Committees: *Hygeia,* Mrs. Philip Jacobson; Public Relations, Mrs. C. W. Lynn; Publicity, Mrs. Fletcher J. Wright, Jr.; Membership, Mrs. Munford Yates; Program, Mrs. George Reese; Historian, Mrs. J. B. Jones; and Exhibit, Mrs. H. R. Schmidt.

Mrs. E. J. Nixon was appointed Chairman for Red Cross for this Auxiliary.

Plans were discussed for enlarging the membership and for the annual linen shower for the hospital, and the following donations made: $36.50 for the Leigh-Hodges-Wright Memorial Bed, and $10.00 for the State Contingent Fund.

MARTHA A. WRIGHT,
(MRS. FLETCHER J. WRIGHT, JR.)
Publicity Chairman.

Richmond Auxiliary.

At the meeting of the Woman's Auxiliary to the Richmond Academy of Medicine, held on October 25, the following officers were elected: President, Mrs. James K. Hall; president-elect, Mrs. Lawrence O. Snead; vice-president, Mrs. Harvey Haag; treasurer, Mrs. J. O. Fitzgerald; historian, Mrs. Fred J. Wampler; recording secretary, Mrs. Edward H. Williams; corresponding secretary, Mrs. Marshall Gordon, and parliamentarian, Mrs. E. C. Bryce.

Norfolk Auxiliary.

The Woman's Auxiliary to the Norfolk County Medical Society met on Friday, October 27th, at the home of Mrs. Millard Savage. A very interesting report of the State meeting in Richmond was given by Mrs. Southgate Leigh, Sr. The new officers for the coming year were installed and are as follows: President, Mrs. H. W. Rogers; vice-presidents, Mrs. Tilden Smith, Mrs. K. W. Howard, and Mrs. Raymond Kimbrough; recording secretary, Mrs. C. M. McCoy; assistant recording secretary, Mrs. R. M. Reyonlds; corresponding secretary, Mrs. James W. Anderson; assistant corresponding secretary, Mrs. Southgate Leigh, Jr.; treasurer, Mrs. W. E. Butler; assistant treasurer, Mrs. Walter Adams, Jr., and historian, Mrs. George Renn.

The following committees were appointed by our new president, Mrs. Rogers: Health Education, Mrs. Wm. Lett Harris; Public Relations, Mrs. R. M. Reynolds; *Hygeia,* Mrs. K. W. Howard; Social, Mrs. Rufus Kight; Press, Mrs. Brock D. Jones; Layette, Mrs. Lydon Harrell; Courtesy, Mrs. Byron Pope; Telephone, Mrs. P. E. Thornhill; Birthday, Mrs. Wm. Tyson; Membership, Mrs. C. J. Devine; Exhibits, Mrs. C. C. Smith; and T. B. Hospital, Mrs. Tilden Smith.

Mrs. Savage, retiring president, gave her annual report, after which tea was served.

(MRS. BROCK D.) EUGENIA H. JONES,
Chairman, Press and Publicity.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

E. R. Squibb & Sons.
Amniotin—Squibb.
Amniotin in Oil, 2,000 International Units.
Amniotin in Oil, 10,000 International Units.
Amniotin in Oil, 20,000 International Units.
Amniotin Capsules, 1,000 International Units.
Amniotin Capsules, 2,000 International Units.
Amniotin Capsules, 4,000 International Units.
Amniotin Pessaries, 1,000 International Units.
Amniotin Pessaries, 2,000 International Units.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Ampoules Adrenalin in Oil, 1 cc.—A vegetable oil (peanut oil) suspension of adrenalin base (New and Nonofficial Remedies, 1939, p. 229), each cubic centimeter of the suspension representing 2 mg. of adrenalin. Parke, Davis & Co., Detroit, Mich.

Ascorbic Acid—Squibb.—A brand of ascorbic acid—N.N.R. (New and Nonofficial Remedies, 1939, p. 499). It is marketed in the form of tablets, 25 mg. (equivalent to 500 international units of vitamin C), and tablets, 50 mg. (equivalent to 1,000 international units of vitamin C). E. R. Squibb & Sons, New York.

Capsules Sulfapyridine—Lederle, 0.25 Gm.—Each tablet contains sulfapyridine—Lederle (*The Journal,* June 24, 1939, p. 2603), 0.25 Gm. Lederle Laboratories, Inc., Pearl River, N. Y.

Accepted Devices for Physical Therapy

The following device has been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

Aloe Utility Short Wave Unit.—This unit is recommended for medical and surgical diathermy. It is a semi-portable model with an available cabinet or chrome stand to serve as a base. The unit was put on trial in a clinic acceptable to the Council and it was reported to give satisfactory clinical service. A. S. Aloe Company, St. Louis, Mo. (*J. A. M. A.,* August 26, 1939, p. 755.)

Propaganda for Reform

Scientific and Commercial Consideration of Vitamins—In *The Journal* A. M. A., August 12, 1939, p. 589, appears a report by the Cooperative Committee on Vitamins of the Council on Pharmacy and Chemistry and the Council on Foods. The report is divided into two parts, one concerning vitamins as drugs and one dealing with vitamins as foods. The Council on Pharmacy and Chemistry again summarizes permissible claims for the use of vitamins in the prevention and treatment of disease. The report endorses the elimination by the American Society of Biological Chemists and the American Institute of Nutrition of the term "vitamin F"; this has not been established as a vitamin. The Council recognizes the desirability of reducing the number of types of vitamin A and D preparations in different classes of manufactured products. The problems of the Council on Foods are complicated by the current tendency toward fortification of foods with excess of vitamins. In general the Council on Foods feels that reconstruction of foods by the addition of vitamins lost in manufacturing processes is justified but mere fortification for the sake of fortification the Council cannot commend. The Councils condemn heartily the needless, irrational and unscientific combinations of vitamins for treatment of diseases or for the alleged easy attainment of superabundant well being. (Reprints of this report are available for 10 cents each.) (*J. A. M. A.,* August 12, 1939, p. 598.)

Vitamin B_6.—To the vitamins of the B group which are known in chemically pure and in synthetic form, namely thiamin (B_1), riboflavin (B_2 or G) and nicotinic acid, must now be added a fourth member, the factor termed vitamin B_6. At least six B vitamins have been proposed. Other "factors," with a variety of nomenclatures and functions, have also been proposed for inclusion in the B group of vitamins. There is some uniformity of opinion in the use of the term vitamin B_6, which has been applied to that factor of the vitamin B complex which prevents or cures an acrodynia-like dermatitis in young rats. It has also been stated that puppies on a vitamin B_6 deficient diet develop a severe microcytic hypochromic anemia, which is cured by the addition of this factor to the diet. The structure of vitamin B_6 has been recently established independently by laboratories in Germany and in this country, and the American investigators have also reported a complete synthesis of the vitamin as conclusive support for the proposed structure. The availability of synthetic vitamin B_6 will no doubt greatly stimulate experimental efforts to elucidate new information regarding its physiologic functions. Furthermore, if the pharmacologic properties of the vitamin permit, possible therapeutic functions of this new compound should be explored. Indeed a very recent account describes the striking improvement in muscular and neurologic symptoms in four persons who were given 50 mg. of synthetic vitamin B_6. (*J. A. M. A.,* August 19, 1939, p. 683.)

Book Announcements

Clinical Gastroenterology. By HORACE WENDELL SOPER, M.D., F.A.C.P. St. Louis, Missouri. The C. V. Mosby Company. 1939. Octavo of 314 pages. With 212 illustrations. Cloth. Price, $6.00.

The subject of gastroenterology is presented unusually well in this concise little volume of approximately 300 pages. The author's style of writing conforms to that usually found in his contributions to the various medical journals. Throughout the book, often one can see to some degree these contributions condensed or elaborated on, most often the former. The best reason for a book of this type is given in the author's preface, which is as follows:

"The object of this work is to cover the field of gastroenterology with particular emphasis on diagnosis and treatment. It is written not only for the specialist in diseases of the digestive system, but also for the internist and the general practitioner of medicine.

"I shall attempt to clarify a subject that has become entirely too complex. A clear concept of physiologic standards will aid in diagnosis and simplify therapy. While we strive to adhere to these standards, we must yet 'follow where the lamp of empiricism leads the way.'

"Indications for the employment of surgery will be cited, but surgical technique will not be discussed. The book represents a crystallization of my clinical work, presenting the methods of diagnosis and treatment that have proved productive of the best results in practice." (H. W. S.)

The brief, concise and dogmatic presentation of diagnosis and treatment of the various diseases of the digestive system, is pleasing and timely. However, it cannot be considered even as a near approach to a complete treatise of the subject. Diagnosis of the disease is outlined in a few well selected words or sentences. Differential diagnosis is seldom elaborated on further than to mention some of the diseases that sometimes are masked under similar symptoms. Under treatment, methods other than the author's, are mentioned only to be rejected. Nevertheless, the methods of treatment recommended are all universally sound and worked out on a physiological basis, and have been productive of good results in the hands of others as well as the author. In most instances the therapy suggested is rational and has stood the test of time and experience.

Many of the fads and fancies in the treatment of peptic ulcer are exposed and discredited, such as vaccines, non-specific proteins, metaphen, mucin, synodal, and larostidin. The "high enema" is shown to be a misconception, and the theory that organic lesions such as ulcers and polyps are allergic in origin is exploded. The chapters on The Oral Cavity, Milk, Diathermy, Allergy, and Therapeutic Notes are timely and well worth reading and study.

The illustrations are made up largely of X-ray films of the various subjects under discussion, and are exceptionally well reproduced. They comprise about one-sixth of the book space. The dietetic considerations are brief and to the point. In a measure this is commendable, but for a subject of this scope a more adequate discussion would be desirable. The bibliography is excellent and proportionately large for the book.

Although this book is an incomplete treatise of the subject, yet the reader will find it timely and well written.

T. N. B.

Practical Microbiology and Public Health. For Students of Medicine, Public Health, and General Bacteriology. By WILLIAM BARNARD SHARP, S.M., M.D., Ph. D., Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas, etc. St. Louis. The C. V. Mosby Company. 1938. Octavo of 492 pages. Illustrated. Cloth. Price $4.50.

This text for medical students is arranged much in the form of a laboratory manual, yet with sufficient additional information to aid in the interpretation of results. As the author states, it is designed to be used in conjunction with lectures and assignments from standard texts. When thus supplemented, it should find a useful place where the study of public health problems is included in the bacteriology course.

J. D. REID.

Standard Bodyparts Adjustment Guide. Traumatic Injuries, Medical Fees, Evaluations. Copyrighted 1939. Insurance Statistical Service of North America. Chicago, Illinois. 8¼ x 11 inches. Leatherette Binding. Single copy $8.00, including ten years revision service.

My impression of the volume entitled: "Standard Bodyparts Adjustment Guide, Traumatic Injuries, Medical Fees, Evaluations," is that the author has made a valuable contribution to the medical profession therein.

While it does not cover the field probably as thoroughly as it might have, nevertheless, it is very ably written and admirably presents a recapitulation of the laws governing the medical care of industrial injuries and medical fees allowed in a large number of states. Also, it is rather clear on the subject of evaluation of lost time and physical disabilities following industrial injuries.

The book would be an asset to any doctor's library, and should be, especially, in the library of every doctor who is engaged in the practice of industrial medicine and the handling of industrial accidents or injuries.

H. U. STEPHENSON.

Superfluous Hair and Its Removal. By A. F. NIEMOELLER, A.B., M.A., B.S. With a Foreword by M. H. MARTON, M.D. Harvest House, New York. 1938. 12mo of 155 pages. Cloth. Price, $2.00.

This small book is written by a layman, apparently for beauty operators. However, the author is evidently a man of experience and intelligence, and possesses a great deal of ethical knowledge of the division made between cosmetic affairs and pathological conditions.

He is meticulous in stating where things need medical care as compared to conditions properly handled by non-medical treatment. There is nothing new in the book, but the subject is well covered and, while not meant for the medical profession, it is worth while and instructive to anyone wishing to take up this work.

T. W. M.

Virginia Medical Monthly

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WYNDHAM B. BLANTON, M. D., *Editor*
AGNES V. EDWARDS, Richmond, *Business Manager*

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Editorial

How Old Are We?

For years the Medical Society of Virginia has masqueraded as a relatively youthful organization, claiming to have first seen the light of day in 1870. Now some industrious student of the birth registry has discovered our real natal day, and the facts of the case reveal that we are fifty years older than we have thought. This suggestion came as quite a shock to the Council of the Society at its session in Richmond and steps were taken immediately to verify, publicize and appropriately commemorate the Society's true birthday.

In brief the records show that on December 15, 1820, seventeen physicians of Richmond and Manchester organized the Medical Society of Virginia. In January, 1821, the constitution was adopted and James McClurg was elected president. On January 2, 1824, the Society was incorporated. Then for some reason it passed into a state of suspended animation from which it was revived on December 27, 1841. Its existence was again interrupted by the chaos of the Civil War and from this it was rescued by a notable reorganization convention of physicians from various sections of the State, held in the Chemical Hall of the Medical College of Virginia, November 2, 1870. Since then it has happily had an uninterrupted existence.

Our informant is correct. While the first society bearing the name of the Medical Society of Virginia was purely local to Richmond, the State society really stems from it in fact, as well as in name, and as birthdays are counted by most institutions and organizations we can rightfully claim to have first come into existence December 15, 1820, and we are now about to enter, not the 70th, but the 120th year of our existence.

The marvels of research are many. It has in this case conferred old age upon our unsuspecting organization.

Genius: A Birthright.

The Seventh International Genetics Congress met in Edinburgh during the hectic days of the last week in August of this year. To a number of attending geneticists, Watson Davis, editor of *Science Service,* cabled a question as to how the world's population could improve most effectively genetically. The answer was issued in the form of a manifesto signed by a distinguished group of scientists. It contains a carefully and thoughtfully drawn statement of what they believe to be the prerequisities of effective genetic improvement. In summary these prerequisites are as follows:

(1) "Economic and social conditions which provide approximately equal opportunities for all members of society."

(2) "The removal of race prejudices" and of economic and political conditions which make for war

and economic exploitation and "foster antagonism between different peoples, nations and 'races'."

(3) "A very considerable economic security" for parents and a special protection for women to ensure that their reproductive duties do not interfere too greatly with their "opportunities to participate in the life and work of the community at large."

(4) "Further development through scientific investigation of ever more efficacious means of birth control, both negative and positive."

(5) "A far wider spread of knowledge of biological principles and of recognition of the truth that both environment and heredity constitute dominating and inescapable complementary factors in human well-being," and that betterment of the race proceeds only from "some kind of conscious guidance of selection."

(6) Conscious selection implies a more socialized organization of society in which social motives predominate and whose objectives are "improvement of those genetic characteristics which make for health, for the complex called intelligence, and for those temperamental qualities which favour fellow-feeling and social behaviour."

The high point of the manifesto is in the assertion that progress means much more than the prevention of genetic deterioration. It makes the thrilling asseveration that by a more widespread understanding of biological principles it is physically possible within a comparatively small number of generations to raise "the level of the average of the population nearly to that of the highest now existing in isolated individuals." In such a day "everyone might look upon 'genius', combined of course with stability, as his birthright."

Medical Philately.

Some time ago the *Journal of the American Medical Association* lamented the rarity of medical faces on commemorative stamps in this country. To determine if other countries were more reflective of medicine in their philately we examined Scott's *Standard Postage Stamp Catalogue* for the year 1937. Among the thousands of stamps here described we found extremely few of medical significance. Egypt has recognized Thoth and Imhotep. France has honored Descartes and Pasteur. Spain, Russia, Greece, Germany and Great Britain have not, apparently, once honored a doctor.

It is particularly gratifying, therefore, to learn that the "benevolent character of the service" of two Southern physicians, is shortly to be recognized by the United States government in a special postage stamp issue. It has been announced that Crawford W. Long and Walter Reed are to be so honored.

In these days of war and rumors of war every effort to perpetuate the memory of peace time heroes is an effort to perpetuate civilization. Walter Reed's birthplace in Virginia is now owned and cared for by the Medical Society of Virginia. A portrait of him hangs at the University of Virginia from which he was graduated in medicine and another in the Richmond Academy of Medicine whose annual historical celebration has been named for him. Here also hangs an artist's interpretation of Long, aided by young assistants, administering ether anesthesia. There must be many other efforts in state medical circles to keep green the memory of these great men. Art has ever been the handmaid of fame and we are glad that the utilitarian postage stamp, now one of its most interesting media, has come to our aid in this particular task of duty and pleasure.

What It Means To Be A Doctor.

The little book, *What It Means To Be A Doctor,* by Dwight Anderson (Public Relations Bureau, Medical Society of the State of New York, 2 East 103rd Street, New York, N. Y.), is a pleasant bit of propaganda. It aims to place in readable form the results of a questionnaire sent to 500 physicians, surgeons and specialists in an effort to determine what qualities of mind and character they considered important in the practice of medicine, at what age they believed a doctor determines upon his profession, what factors they felt lead to his decision, and whether or not they as physicians wished their sons to follow in their tracks. The book undertakes to show the undoubted disadvantages of socialized medicine to the doctor and to his patient. "As we come to understand him [the doctor] better," it states, "of one thing we are increasingly aware: that what happens to the doctor also determines what happens to the patient. . . . Their interests are the same."

Department of Clinical and Medical Education of the Medical Society of Virginia

Postgraduate Clinic.

The twenty-fourth semi-annual postgraduate clinic was held at the University of Virginia Medical School on Friday, November 3.

A feature of the program was the dedication and inspection of the new John Staige Davis Neuro-Psychiatric Pavilion. Dr. Adolph Meyer of the Johns Hopkins University delivered the dedication address, speaking on the subject "The Person in Medical Practice and Teaching."

The following program was presented:

The Modern Treatment of Gonorrhea—Dr. Sam A. Vest.

The Neuro-Surgical Aspects of Low Back Pain and Sciatica—Dr. John M. Meredith.

An Evaluation of Vaccines and Sera in Prophylaxis and Treatment—Dr. George M. Lawson.

Changes in Radiation Therapy—Drs. Vincent Archer and George Cooper.

A SYMPOSIUM ON HYPERTENSION

Experimental Hypertension—Dr. Alfred Chanutin.

Pathological Physiology of Human Hypertension—Dr. Eugene M. Landis.

The Treatment of Human Hypertension—Dr. J. Edwin Wood.

Inspection of the New John Staige Davis Neuro-psychiatric Pavilion.

The Person in Medical Practice and Teaching—Dr. Adolph Meyer, Johns Hopkins University.

Doctors attending the clinic were:

Dr. W. C. Archer, Waynesboro.
Dr. H. L. Baptist, Ivy.
Dr. Mary Baughman, Richmond.
Dr. C. L. Booker, Lottsburg.
Dr. R. E. Booker, Lottsburg.
Dr. O. K. Burnette, Culpeper.
Dr. Glenn C. Campbell, Staunton.
Dr. H. T. Chelf, Culpeper.
Dr. Louise Leland Clark, Chester.
Dr. N. P. Cocke, Charlottesville.
Dr. J. C. Coulter, Charlottesville.
Dr. H. S. Daniel, Louisa.
Dr. E. D. Davis, Crozet.
Dr. Clara King Dickinson, Marion.
Dr. William E. Dold, Charlottesville.
Dr. E. B. Dovell, Unionville.
Dr. J. Newton Dunn, Blackstone.
Dr. Granville Eastham, Culpeper.
Dr. John Edwards, Medical College of Virginia, Richmond.
Dr. T. S. Englar, Charlottesville.
Dr. E. E. Epperson, Meadowview.
Dr. M. D. Foster, Stanardsville.
Dr. R. W. Garnett, Danville.
Dr. James Gill, Richmond.
Dr. James Grizzard, Drewryville.
Dr. E. J. Haden, Ore Bank.
Dr. Percy Harris, Scottsville.
Dr. M. B. Jarman, Hot Springs.
Dr. C. T. Jones, Petersburg.
Dr. N. B. Jeter, Covington.
Dr. D. M. Kipps, Front Royal.
Dr. Edith Lacy, Louisa.
Dr. George Lawson, Charlottesville.
Dr. Anita Lotti, Charlottesville.
Dr. John C. McCluer, Alexandria.
Dr. John F. McGavock, Crozet.
Dr. Florence Mahoney, Staunton.
Dr. J. E. Marable, Newport News.
Dr. R. L. Mason, Roanoke.
Dr. J. O. Mundy, Charlottesville.
Dr. W. A. Murphy, Staunton.
Dr. Dan Nichols, Charlottesville.
Dr. T. E. Patteson, Ransons.
Dr. B. H. Payne, Staunton.
Dr. Charles G. Pearson, Blue Ridge Sanatorium.
Dr. E. B. Pendleton, Cuckoo.
Dr. William B. Porter, Richmond.
Dr. C. W. Putney, Staunton.
Dr. C. C. Richards, Roanoke.
Dr. L. G. Richards, Roanoke.
Dr. L. G. Roberts, Moorman's River.
Dr. Alex. Robertson, Staunton.
Dr. E. B. Robertson, Danville.
Dr. O. N. Shelton, Orange.
Dr. W. L. Sibley, Roanoke.
Dr. Frank B. Stafford, Blue Ridge Sanatorium.
Dr. J. S. Staley, Marion.
Dr. J. L. Stringfellow, Culpeper.
Dr. J. F. Thaxton, Tye River.
Dr. Beverley Tucker, Richmond.
Dr. W. H. Turner, Round Hill.
Dr. J. J. Waff, Shenandoah.
Dr. Rachel Weems, Harrisonburg.
Dr. H. F. White, Fishersville.
Dr. A. C. Whitley, Palmyra.
Dr. William H. Wood, Charlottesville.

Internal Medicine

The retiring president of the Medical Society of Virginia, Dr. A. F. Robertson, Jr., now Chairman of the Department of Clinical and Medical Education, recently addressed a letter to the secretary of each component society in the State, calling attention to the short postgraduate courses available to local societies. These are made possible through the financial support of the Medical Society. An attempt will be made to offer short courses on any subjects requested by societies. Requests should be addressed to the Executive Secretary.

GEO. B. ZEHMER,
Executive Secretary.

Proceedings of Societies

Medical Society of Northern Virginia.

The regular meeting of this Society was held in Edinburg on November 14, with Dr. O. W. Carper of Front Royal presiding. Dr. Alexander F. Robertson, Jr., Staunton, spoke on "Sulfapyridine in the Treatment of Pneumonia", and Dr. George S. Smith, Jr., Winchester, on "Temperature Following Upper Respiratory Infections". The following officers were elected: president, Dr. Ralph W. Stoneburner, Edinburg; vice-president, Dr. J. B. McKee, Winchester; and secretary-treasurer, Dr. J. E. Harris (re-elected), Winchester.

The next meeting will be held in Winchester in March.

Virginia, Maryland and District of Columbia Medical Society.

The Fall meeting of this Society was held in Washington, on November 15, under the presidency of Dr. S. A. Nichols of Clarksville, Md. The following program was presented: The Treatment of Varicose Ulcers of the Leg by Dr. Wm. B. Marbury; Renal Tuberculosis by Dr. Wm. P. Herbst; Aseptic Necrosis of Bone by Dr. Thomas M. Foley; and Alcohol Injection in the Treatment of Angina Pectoris by Dr. O. Hugh Fulcher. All speakers are from Washington. Following luncheon, Mr. Drew Pearson, co-author of the Washington Merry-Go-Round, gave an address on "America and the War".

Petersburg Medical Faculty.

At the annual meeting of the Faculty held in November, the following officers were elected: President, Dr. J. E. Hamner; vice-presidents, Drs. Francis Taylor and Philip Jacobson; and secretary-treasurer, Dr. Wilbur M. Bowman (re-elected).

The Roanoke Academy of Medicine

Held its regular meeting on November 6, and the following program was presented: Kidney Extracts and Hypertension by Dr. Eugene M. Landis, professor of medicine, University of Virginia; and The Role of Vitamin K in Etiology, Prevention and Treatment of Hypoprothrombinemia of the Newly-Born and Hemorrhage in the Newly-Born by Dr. W. W. Waddell, Jr., professor of pediatrics, University of Virginia.

Dr. L. G. Richards is president of the Academy and Dr. David B. Stuart, secretary-treasurer.

News Notes

May your Christmas be merry
And the New Year one of happy days!

News From the Medical College of Virginia.

Dr. C. L. Outland, associate professor of preventive medicine, has been elected president of the American School Health Association.

Dr. Porter P. Vinson, professor of bronchoscopy, esophagoscopy and gastroscopy, has been elected first vice-president of the Alumni Association of the Mayo Foundation.

Dr. G. H. Ghermann, medical director of the E. I. DuPont de Nemours Company, and Dr. John H. Foulger, director of the Haskell Laboratory of Industrial Toxicology of the DuPont Company, have been appointed associate professors of industrial health here. Dr. W. L. Weaver of the DuPont plant at Ampthill has been appointed instructor in in-

dustrial health. The appointments are a part of a program for the expansion of the college's course in industrial health.

Armistice Day exercises were held in Monumental Church at twelve o'clock noon on November 11. Dr. W. Lowndes Peple and Dr. Vincent Franks spoke briefly. This program is held jointly each year with the veterans of Base Hospital 45 Unit, more familiarly known as the McGuire Unit. Dr. Peple was chief of the surgical service in this unit and Dr. Stuart McGuire was head of the unit. Dr. McGuire was also present for these exercises.

The enrollment for the session is 695: 303 in medicine, 139 in dentistry, 112 in pharmacy, and 141 in nursing.

The Annual Stuart McGuire lectures are scheduled for April 16 and 17, 1940. Dr. C. Frederic Fluhmann, associate professor of obstetrics at Leland Stanford University, will be the lecturer. He will give two lectures, one on *Anesthesia and Analgesia in Obstetrics* and a second on *The Problem of Abnormal Uterine Bleeding.*

Dr. Lewis E. Jarrett, director of the hospital division, attended the annual meeting of the American College of Surgeons in Philadelphia, participating in the discussion of several papers presented at the meeting.

Dr. Fritz von Gutfeld has been appointed associate in bacteriology and reported for duty recently.

University of Virginia, Department of Medicine, News.

At the meeting of the University of Virginia Medical Society on October 23, Dr. Eugene M. Landis spoke on the subject of Kidney Extracts and Hypertension.

Dr. J. Edwin Wood read a paper before the meeting of the Augusta Medical Society in Waynesboro on November 1 on the subject of Common Drugs Used in Cardiorenal Diseases.

The twenty-fourth Postgraduate Clinic sponsored by the University Medical School and the Division of Extension was held on November 3 with the following program: The Modern Treatment of Gonorrhea by Dr. Samuel A. Vest; The Neuro-Surgical Aspects of Low Back Pain and Sciatica by Dr. John M. Meredith; An Evaluation of Vaccines and Sera in Prophylaxis and Treatment by Dr. George M. Lawson; Changes in Radiation Therapy by Drs. Vincent Archer and George Cooper; A symposium on Hypertension: Experimental Hypertension by Dr. Alfred Chanutin, Pathological Physiology of Human Hypertension by Dr. Eugene M. Landis, and The Treatment of Human Hypertension by Dr. J. Edwin Wood. The Clinic was attended by sixty-seven physicians.

On November 3, Dr. Adolph Meyer, Professor of Psychiatry at the Johns Hopkins University, delivered an address on the occasion of the dedication of the John Staige Davis Neuro-Psychiatric Wards. He spoke on the subject of The Person in Medical Practice and Teaching.

On November 6, Dr. W. W. Waddell spoke before the Roanoke Academy of Medicine on the Role of Vitamin K in the Etiology, Prevention and Treatment of Hemorrhage in the Neonatal Period. Dr. Eugene M. Landis spoke on the subject of Hypertension.

At the meeting of the University of Virginia Medical Society on November 13, Dr. W. W. Waddell spoke on the subject of the Role of Vitamin K in the Etiology, Prevention and Treatment of Hemorrhage in the Newly Born.

News from Duke University School of Medicine.

On October 14 Dr. Marvin A. Stevens, of the Yale University School of Medicine, held a clinic on athletic injuries.

On October 21 the Baltimore-Washington Dermatological Society met at Duke Hospital.

On October 25 Dr. William Allan, President of the North Carolina Medical Society, gave an illustrated lecture on Heredity and Disease.

On November 14 Dr. Harvey B. Stone, Associate Professor of Surgery of The Johns Hopkins University School of Medicine, held a surgical clinic.

From October 19-21 the Annual Postgraduate Symposium on Diseases of the Lungs and Thorax was held, in which the following participated: Dr. Edward D. Churchill, Dr. Frederick T. Lord and Dr. Maxwell Finland, of the Harvard Medical School; Dr. Daniel M. Brumfiel, of Trudeau Tuberculosis School, Saranac Lake, N. Y.; Dr. Chester A.

Stewart, of the University of Minnesota School of Medicine; Dr. Edward N. Packard, of the New York State Hospital for Incipient Tuberculosis, Ray Brook, N. Y.; Dr. Cameron Haight, of the University of Michigan; Dr. William DeW. Andrus, of Cornell University; Dr. Isaac A. Bigger, of the Medical College of Virginia; Dr. Charles R. Austrian and Dr. William F. Rienhoff, of The Johns Hopkins University School of Medicine; Dr. Dickinson W. Richards, Jr., of Columbia University College of Physicians and Surgeons; Dr. Stuart W. Harrington, of Mayo Clinic; Dr. Daniel C. Elkin, of Emory University School of Medicine, and Dr. Gabriel Tucker, of the University of Pennsylvania School of Medicine.

The following Virginia doctors registered attendance: Drs. Carleton Moorman, Altavista; Charles L. Savage, Ashland; J. A. Proffitt, Burkeville; J. B. Nicholls, Catawba Sanatorium; E. C. Drash, A. D. Hart, and M. L. White, Charlottesville; E. W. Arnett, Jr., Snowden C. Hall, Jr., S. E. Hughes, P. W. Miles, J. J. Neal, C. W. Pritchett, Chas. W. Purcell, H. W. Pritchett, E. B. Robertson, and W. C. Yeatts, Danville; J. B. Kiser, Emporia; C. W. Thomas, Floyd; B. A. Rice, Forest; M. B. Raiford, Franklin; T. N. Davis, Jr., Edwin A. Harper, and T. E. Rucker, Lynchburg; Antonio Gentile and Walter R. Newbern, Newport News; Elizabeth C. Cole, C. Lydon Harrell, M. S. Herrington, R. S. Kight, C. C. Smith, M. R. Whitehill, and N. G. Wilson, Norfolk; Frank A. Kearney and Robt. H. Wright, Jr., Phoebus; F. L. Finch and E. C. Harper, Richmond; William R. Watkins, South Boston; Richardson Joyner, Suffolk; and Carol M. Rice, Sweet Briar.

Dr. Charles H. Bondurant,

Class of '29, Medical College of Virginia, has resigned his position with the Virginia State Health Department and has located in Front Royal, where he is connected with the Viscose Company.

Changes in State Health Department.

Dr. Beverly L. Holladay, recently assistant health officer of Arlington County, has been appointed to succeed Dr. C. H. Bondurant as health officer at Wytheville.

Dr. R. Bruce Mallett has succeeded Dr. Beverly L. Holladay as assistant health officer of Arlington County.

Dr. J. H. Crouch has been appointed health officer of Henrico County, effective December 1, succeeding Dr. J. D. Hammer, Jr., who is taking a course in public health work at Johns Hopkins University.

Appointed to State Hospital Board.

Dr. R. A. Morison, Abingdon, has been appointed by Governor Price as a member of the State Hospital Board, to succeed the late Colonel King E. Harman of Pulaski.

American College of Surgeons.

At the annual meeting of the College in Philadelphia recently, Dr. George P. Muller of that city was installed as president, and Dr. Evarts A. Graham of St. Louis was named president-elect.

Dr. W. R. Bracey,

Richmond, was elected a vice-president of the Association of Seaboard Air Line Railway Surgeons, at its thirty-seven annual conference held in St. Petersburg, Fla., in November.

Commander Edward V. Valz,

Medical Corps, U. S. Navy, Retired, has been recalled to active duty, and is stationed at the Philadelphia Navy Yard.

Dr. Erwin S. Berlin,

Recently of Rural Retreat, announces that he has located in Wytheville, with offices at 350 West Main Street.

Dr. G. D. Rackley,

After practicing for a time at Richlands, announces that he has located at Opelousas, Louisiana.

American Public Health Association.

At the 68th annual meeting of this Association, held in Pittsburgh the week of October 16, the following officers were elected: President, Dr. Edward S. Godfrey, Jr., Albany, N. Y.; president-elect, Dr. W. S. Leathers, Nashville, Tenn.; vice-presidents, Miss Elisabeth L. Smellie, Ottawa, Ontario; Dr. Domingo F. Ramos, Havana, Cuba; and Dr. Wilton L. Halverson, Pasadena, Calif.; treasurer, Dr. Louis I. Dublin, New York City; executive secretary, Dr. Reginald M. Atwater, New York City; and chairman of executive board, Dr. Abel Wolman, Baltimore. The next annual meeting will be held in Detroit, Michigan, in October, 1940.

The American Academy of Ophthalmology and Otolaryngology

Held its annual meeting in Chicago on October 11. Dr. Frank E. Brawley, Chicago, will become presi-

dent of the Academy on January 1, and the following other officers were elected: Dr. Frank R. Spencer, Boulder, Colorado, president-elect; Drs. Arthur W. Proetz, St. Louis; Joseph F. Duane, Peoria, Ill.; and Charles T. Porter, Boston, vice-presidents; Dr. Secord H. Large, Cleveland, comptroller; and Dr. William P. Wherry, Omaha, Neb., executive secretary, re-elected.

Dr. J. A. Proffitt,

Burkeville, was recently elected a member of the Board of Directors of the Crewe Kiwanis Club.

Dr. Griffith Honored.

At the annual meeting of the Norfolk and Western Surgeons' Association held in New York in September, Dr. R. S. Griffith, of Waynesboro, was honored by a unanimous resolution expressing the association's felicitations and congratulations to him as the oldest living member. He has served continuously as an N. & W. surgeon since 1894 and has attended every convention of the Surgeons' Association since its organization in 1908.

Married.

Dr. John William Linfesty, class of '35, Medical College of Virginia, and Miss Anna Miriam Snook, Richmond, November 11. They will make their home temporarily in Washington, where Dr. Linfesty is connected with the United States Army.

An Old Enemy Yields—Slowly.

> Whilst meager Phthisis gives a silent blow
> Her Stroaks are sure; but her Advances slow
> No loud alarms nor fierce assaults are shown
> She starves the Fortress first; then takes the town
> SAMUEL GARTH, London, 1699.

"Meager Phthisis" in Virginia is now slowly yielding to the united campaign waged against it by the medical profession, health departments and the Virginia Tuberculosis Association. How far from won is the battle is shown by the fact that there were 1,831 deaths from tuberculosis in Virginia last year. Tuberculosis is still the chief cause of death between the ages of fifteen and forty-five, with 1,013 of the tuberculosis deaths in those years of greatest promise.

Since 1908 the Virginia Tuberculosis Association has carried on a campaign of education, prevention and cure. Over a hundred thousand dollars raised in last year's Seal Sale has been spent by the association and its local branches on educational campaigns, sanatorium board for indigent patients, X-rays, nourishing food, nursing service, etc.

For its 30th annual sale the Virginia Tuberculosis Association is distributing 40,900,000 Christmas Seals. The physicians of Virginia are asked to buy them as generously as possible.

International College of Surgeons.

The officers of the United States Chapter of the International College of Surgeons cordially invites all physicians and surgeons in good standing to their Fourth Assembly, to be held in Venice, Fla., February 11-14, 1940. There is no registration fee. For general information, write Dr. Fred H. Albee, Chairman, 57 West 57th Street, New York City, and for information about the presentation of scientific papers or exhibits, Dr. Charles H. Arnold, Secretary of the Scientific Assembly, Terminal Bldg., Lincoln, Nebraska.

National Social Hygiene Day

Will be observed for the fourth time on February 1, 1940, it has been announced by Dr. Walter Clarke, executive director of the American Social Hygiene Association. Plans for the event presage more than 5,000 community and regional meetings over the country and include, among other features, the release by the association's National Anti-Syphilis Committee of a new sound motion picture on syphilis entitled "With These Weapons".

Anyone desiring information concerning participation in Social Hygiene Day, and program and publicity aids, is asked to write the Social Hygiene Day Service, American Social Hygiene Association, 50 West 50th St., New York City.

Dr. Charles H. Armentrout,

Of Flint Hill is spending sometime in Boston, Mass., where he is taking graduate work in medicine, his position being graduate assistant in medicine at the Massachusetts General Hospital.

Dr. D. Hunter Marrow

And family of Boydton, left in November for Daytona Beach, Fla., where they will spend the winter months, as usual.

Dr. Leo I. Hallay,

Who has practiced for a time at McClure, has moved to Fort Blackmore where he will continue his work.

Memory Again Honored.

The forty-sixth annual dinner of the Kings County Alumni Association was held on the evening of October 21, at Hotel Astor in New York City. The affair, this year, was dedicated to the memory of Dr. Walter Reed, pioneer in yellow fever work, and an ex-intern of "the County" in the year 1871. The speaker of the evening was the Honorable Peter Schmuck, Justice of the Supreme Court of the State of New York.

Dr. Charles H. Dow,

Formerly of Wytheville, is now located in Chilhowie.

Dr. Emmett C. Matthews

Announces the removal of his offices to 1100 West Franklin Street, Richmond, for the practice of internal medicine.

Postgraduate Course in Ophthalmology and Otolaryngology.

The sixth series of lectures on these subjects, sponsored annually by the University of Virginia, is being held at the University on December 5, 6, 7 and 8. These will be in the amphitheater and in operating rooms of the Medical School and Hospital. There is a fee of $25.00 for the entire course or $15.00 for either half of the course, registrations to be made through Dr. Fletcher D. Woodward, Box 1685, University, Virginia.

News Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage.

Allers, R.—The psychology of character.
Ash, J. E.—Atlas of otolaryngic pathology.
Amberson & Smith—Outline of physiology.
A. A. A. S.—Mental health. Pub. No. 9.
Aughinbaugh, W. E.—I swear by Apollo.
Bailey, P. *et al.*—Intracranial tumors of infancy and childhood.
Bergey, D. H.—Manual of determinative bacteriology.
Chibnall, A. C.—Protein metabolism in the plant.
Coon, C. S.—The races of Europe.
Cushing, H.—Bibliography of the writings of Harvey Cushing.
Dampier, W.—A history of science.
Dawson, P. M.—Soviet samples.
De Coursey & Ash—Atlas of ophthalmic pathology.
Dunbar, H. F.—Emotions and bodily changes.
Evans, C. L.—Recent advances in physiology.
Fearn, A. W.—My days of strength.
Findley, P.—Priests of Lucina.
George, W. H.—The scientist in action.
Hill, F. E.—Educating for health.
Huddleson, I. F.—Brucellosis in man and animals.
Jones, E. K.—Hospital libraries.
Karinthy, F.—A journey round my brain.

Physician Wanted—

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Wanted—

Doctor to take over general practice during January and February, 1940, while attending session of Virginia Assembly. Address "Legislator", care the MONTHLY. (*Adv.*)

For Sale.

Elliott Treatment Regulator. A-1 condition. Write No. 175, care VIRGINIA MEDICAL MONTHLY. (*Adv.*)

Obituary Record

Dr. Antonio Gentile,

Newport News, died unexpectedly November 16. He was thirty-six years of age and a graduate in medicine from the University of Virginia in 1927. Dr. Gentile was a member of the staff of the Elizabeth Buxton Hospital, and had been a member of the Medical Society of Virginia since 1928. His wife survives him.

Dr. William Richardson Culbertson,

Prominent physician of Coeburn, died November 6 as a result of injuries received in an automobile accident several days before. He was sixty years of age and a graduate of the former Baltimore University School of Medicine in 1904. He was formerly a member of the Medical Society of Virginia.

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